DEPARTMENT OF THE ARMY
US ARMY TOXIC AND HAZARDOUS MATERIALS AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5401
January 13, 1992

REPLY TO ATTENTION OF
Installation Restoration Division

Ms. Diana Newman
U.S. Environmental Protection Agency
Region VII
WSTM/SPFD/FAFE
726 Minnesota Avenue
Kansas City, Kansas 66101

Dear Ms. Newman:

The report entitled "St. Louis Ordnance Plant Environmental Study Status Report" and dated November 1991 is enclosed for your review. The area of study in this report is that portion of the Hanley Area which remains under the ownership of the U.S. Army Engineer Center and Fort Leonard Wood.

Any questions concerning the above should be addressed to Mr. Robert A. Snyder at (410) 671-1510.

Sincerely,

for Joseph F. King LTC CM

Robert J. York
Chief
Installation Restoration Division

Enclosure

Copy Furnished (without enclosure):

Commander, U.S. Army Engineer Center and Fort Leonard Wood, Attention: ATZT-DEH-EE (Mr. Karl Daubel), Fort Leonard Wood, Missouri 65473-5000

WELDON SPRING TRAINING AREA
US ARMY ENGINEER CENTER AND FT. LEONARD WOOD
7301 S HIGHWAY 94
Saint Charles MO 63304-2200

December 7, 1994

Ms. Diana Newman
USEPA, Region VII
WSTM
726 Minnesota Ave.
Kansas City KS 66101

Dear Ms. Newman:

The enclosed document "Report DRXTH-FS-TR-81105 - SURVEY OF HAZARDOUS/CHEMICAL AREA NO. 2 OF THE FORMER ST. LOUIS ORDNANCE PLANT - Volume I" is being provided in response to the December 5, 1994, telephonic request of Mr. Jim Daly. Mr. Daly advised that a Summary Report on the former St. Louis Ordnance Plant is being prepared and this document was not available in your files. Mr. Daly's request for this document has been coordinated with the US Army Engineer Center and Ft. Leonard Wood Environmental Office.

Sincerely,

Karl J. Daubel
Environmental Coordinator
Weldon Spring Training Area

Enclosure

US Army Corps of Engineers

Toxic and Hazardous Materials Agency

Task Order No. 3
Contract Number
DAAA15-88-D-0009

USATHAMA

ST. LOUIS ORDNANCE PLANT ENVIRONMENTAL STUDY

Status Report

FINAL DOCUMENT

November 1991

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13. ABSTRACT *(Maximum 200 words)*

A site contamination assessment was performed at the Hanley Area of the St. Louis Ordnance Plant located in St. Louis, Missouri. Twenty-nine surface soil samples were collected across the site to evaluate contamination potentially affecting surface runoff and windblown dust. Two water samples were collected from within the tunnel system. A screening survey was performed and samples collected to determine the extent of asbestos-containing materials (ACMs) within the tunnel system. Results of the sampling indicated that surface soils are contaminated with lead at levels of potential concern. Water samples collected were contaminated with lead and an explosive at levels of potential concern. ACMs are present in most areas within the Hanley Area, some of which should be removed and/or repaired. Recommended remedial actions are described in the report and include confirmatory soil sampling and asbestos abatement.

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STATUS REPORT
FOR -- TASK ORDER NO. 3
ST. LOUIS ORDNANCE PLANT
ENVIRONMENTAL STUDY

Gary L. McKown, Ph.D.
Program Manager

ICF TECHNOLOGY INCORPORATED
9300 LEE HIGHWAY
FAIRFAX, VA 22031

NOVEMBER 1991

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LIST OF EXHIBITS

LIST OF EXHIBITS (cont'd)

LIST OF ACRONYMS

AAR	Asbestos Analyst Registry
ACM	asbestos-containing material
AHERA	Asbestos Hazard Emergency Response Act
AIHA	
bdl	below detection limit
CETCO	*Certified Engineering & Testing Company*
CLASS	contract laboratory analytical support services
CVAA	cold vapor atomic absorption
DOL	Department of Labor
EPA	USEPA
FLW	Fort Leonard Wood
GFAA	graphite furnace atomic absorption spectroscopy
GOCO	Government-owned, contractor-operated
GSA	General Services Administration
GUSARC	Goodfellow U.S. Army Reserve Center
Hanley	Hanley Industries
ICAP	inductively coupled argon emission spectroscopy
ICF KE	ICF Kaiser Engineers
MCLs	Maximum Contaminant Levels
MDNR	Missouri Department of Natural Resources
MLSD	Metropolitan St. Louis Sewer District
MSLSD	Metropolitan St. Louis Sewer District
mybp	
NESHAP	National Emission Standards for Hazardous Air Pollutants
NIOSH	
NVLAP	National Voluntary Laboratory Accreditation Program
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Act
PAHs	*polynuclear aromatic hydrocarbons*
PAT	Proficiency in Analytical Testing
PCBs	polychlorinated biphenyls
PETN	Pentaerythritol Tetranitrate
ppb	part per billion
RODs	Records of Decision
SCS	Soil Conservation Service
SLAAP	St. Louis Army Ammunition Plant
SLOP	St. Louis Ordnance Plant
SOPs	Standard Operating Procedures
TAL	Target Analyte List
TCL	Target Compound List
TCLP	toxicity characteristic leaching procedure
U.S. Cartridge	United States Cartridge Company
USACE	U.S. Army Corps of Engineers
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
VOCs	volatile organic constituents
°F	Fahrenheit

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

ICF KE was tasked by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) to conduct a site contamination assessment of the Hanley Area at the St. Louis Ordnance Plant (SLOP), St. Louis, MO. This report describes the investigative methods used in and results of the study. A total of twenty-nine surface soil samples were collected across the site to evaluate the presence of contamination potentially affecting surface runoff and windblown dust. Two water samples were collected from standing water within the tunnel system as an indicator of whether off-site migration via surface routes was occurring. A screening survey was performed and eleven samples were collected to determine the extent of asbestos-containing materials (ACMs) within the building and tunnel system.

The results of the contamination assessment indicated that surface soils are contaminated with lead at levels of potential concern. Contaminant migration pathways include surface runoff and windblown dust. Water samples collected from the tunnels were contaminated with lead and possibly an explosive at levels of potential concern. Although the main source of standing water in the tunnels has been removed, water from infiltration and surface runoff may still enter the tunnel system, possibly carrying contaminants with it in the process.

Buildings, bunkers, and possibly the tunnel system contains metals and explosive contamination which may have contributed to soil and water contamination. Disrepair of the structures has exacerbated this situation.

ACM are present in most areas within the Hanley Area, and some of these materials should be removed and/or repaired. The ACM problem associated with potential demolition or renovation activities will be particularly severe.

A leaking transformer containing a high concentration of PCBs contaminated a limited amount of soil. The transformer has been demounted and protectively wrapped, and both the transformer and contaminated soils are in the process of being properly disposed of.

Enhanced restriction on access to the site, as well as confirmatory soil sampling at certain points within the Hanley area was recommended. Access to the tunnels and basements from the eastern side of Goodfellow Boulevard should be permanently blocked.

Buildings should be repaired to minimize inflow of rainfall and resulting runoff (via the land surface or the tunnels) of contamination. Demolition of former production Buildings 218A, 218B, and 218C and filling/capping of the basement cavities should be considered to further reduce these contaminant sources. Demolition of buildings within the magazines where contamination has been found also should be considered. Long-term planning should address whether the basements of buildings, if properly engineered, could be permitted as an approved on-site asbestos landfill.

The powder wells and associated piping should be characterized to determine whether contamination is present, then excavated and disposed.

It was recommended that the Army explore options for appropriate management of the asbestos situation in the Hanley Area at SLOP, without the need for complete removal of all ACM. The first priority in asbestos removal should address aboveground, potentially friable ACM (particularly Buildings 218A, 218B, and 218C), and removal of these materials should precede any demolition (if planned) or further deterioration of the structures. Asbestos elsewhere in the Hanley Area, at a minimum, should be monitored for changes in the potential hazards posed. Three different ACM abatement options were offered in this report.

1.0 INTRODUCTION

1.1 OVERVIEW

Under Contract No. DAAA15-88-D-0009, Task No. 3, ICF Kaiser Engineers (ICF KE) was tasked by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) to conduct a site contamination assessment of the Hanley Area at the St. Louis Ordnance Plant (SLOP), St. Louis, MO. This report describes the methods and results of the study to determine the presence and extent of contamination at the site.

1.2 SCOPE AND OBJECTIVES OF THE SITE INVESTIGATION

The purposes of the site investigation were to: (1) identify the cleanup problems associated with the potential presence of asbestos-containing material (ACM) inside the buildings and within the underground utility tunnels; (2) determine the potential for contamination migration by surface routes through the underground utility tunnels which underlie the site; and (3) evaluate the extent of surface soil contamination around the buildings at the Hanley Area and the potential for contamination of groundwater. These objectives were met by assessment of sampling and analysis data obtained during the present study and data from past environmental studies at the Hanley Area.

1.3 REPORT ORGANIZATION

This site assessment report consists of eight sections. Section 1.0 serves as an introduction and describes the scope of the investigation and its objectives. Section 2.0 presents historical information about the site, describes the physical setting, and presents results of earlier environmental studies within the Hanley Area. Section 3.0 describes the screening surveys conducted in the present study, including the sampling methodology, decontamination procedures, and chain-of-custody procedures. Section 4.0 describes the regulatory criteria used to assess the sampling and analysis data. Section 5.0 provides a discussion of the quality assurance aspects of the sampling and analysis activities at the Hanley Area. Section 6.0 presents the results of the asbestos, tunnel water, and soil analyses and an assessment of environmental contamination at the Hanley area. Section 7.0 provides a summary of conclusions, identifies data gaps, and lists recommendations for additional work for the Hanley Area associated with decontamination of buildings, sewers, powder wells, asbestos, tunnel water, and soil. Section 8.0 provides references consulted in the process of writing this report.

2.0 BACKGROUND

This section presents information that is known regarding the St. Louis Ordnance Plant (SLOP) and more specifically, the Hanley Area. This includes information on the site history, physical setting of the area, and a summary of potential environmental problems identified at the site as a result of previous investigations.

2.1 SITE HISTORY

The St. Louis Ordnance Plant is located on the northwestern border of the city of St. Louis, Missouri, where it joins with St. Louis County (Exhibit 2-1). Most of the installation is located within the corporate limits of the city of St. Louis. The total original area of the installation is 279.5 acres. SLOP ended ordnance production in 1969, but subsequent use has been made of a portion of the installation for explosives production through lease to private industry. Since the 1970s the U.S. Army has transferred large portions of this acreage to various federal and city government entities.

The Hanley Area at SLOP is a 14.7-acre parcel previously leased to Hanley Industries for research, development, manufacture and testing of various explosives and munition components. Historical records indicate the likelihood that other munition manufacturing operations occurred within the Hanley Area during the period when SLOP was an active ordnance production facility. Previous limited studies have shown that contamination residues are present on building surfaces within the area, but the potential for off-site migration and, therefore, the requirements for remediation were not known. Previous studies also did not address the potential asbestos problems at the site.

The area formerly known as Hazardous/Chemical Area No. 2 consists of approximately 28 acres. This area of the facility remains under the ownership of the U.S. Army's Fort Leonard Wood (FLW). The Department of Labor (DOL) operates the St. Louis Jobs Corps Training Center on approximately 13 acres of Hazardous/Chemical Area No. 2. The remaining 14.7-acre Hanley Area is the subject of this report (Exhibit 2-2).

Much of the following information on the history of operations at SLOP was obtained from a report entitled "Survey of Hazardous/Chemical Area No. 2 of the Former St. Louis Ordnance Plant," prepared by the US Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, and dated June, 1981.

2.1.1 Chronology of Operations - General

1941 — The St. Louis Ordnance Plant (SLOP) was constructed between January of 1941 and May of 1942. Initial production of ammunition began as early as December of 1941. During World War II the facility was operated as a Government-owned, contractor-operated (GOCO) plant for the production of small arms ammunition and components for 105 mm shells. Three contractors occupied the facility during the periods when various ordnance items were produced.

1941-1957 — Contractors

- The United States Cartridge Company (U.S. Cartridge), a subsidiary of Olin Industries, manufactured small arms ammunition. U.S. Cartridge occupied Plants 1 and 2 (187 acres) as identified on the outlease map of SLOP shown in Exhibit 2-3. This company is reported to have produced 67 million rounds of ammunition (USATHAMA, 1981).

EXHIBIT 2-1

ST. LOUIS ORDNANCE PLANT AREA MAP

(From: USGS 7.5' Clayton Quadrangle)

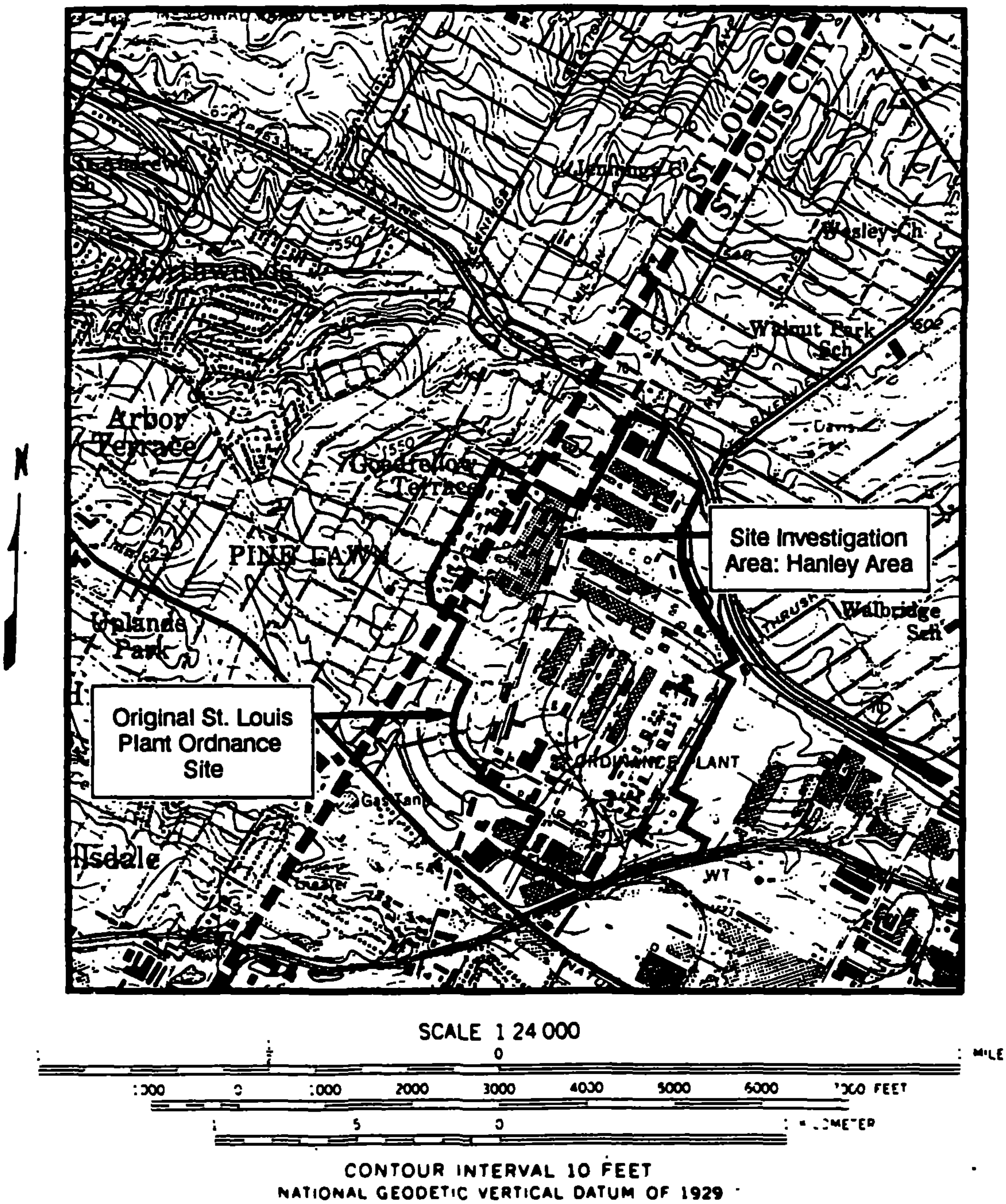


EXHIBIT 2-2

SITE INVESTIGATION AREA--SLOP

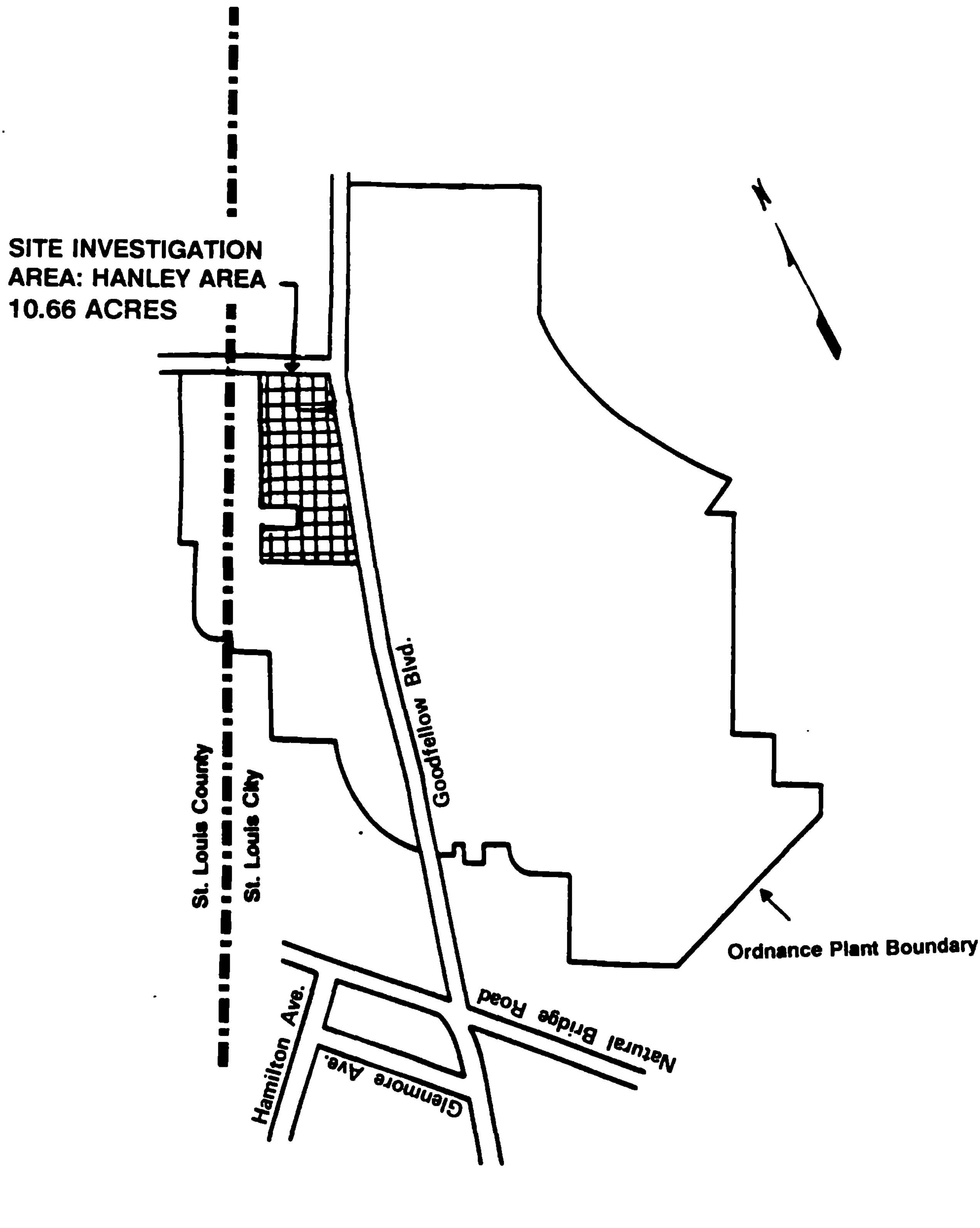
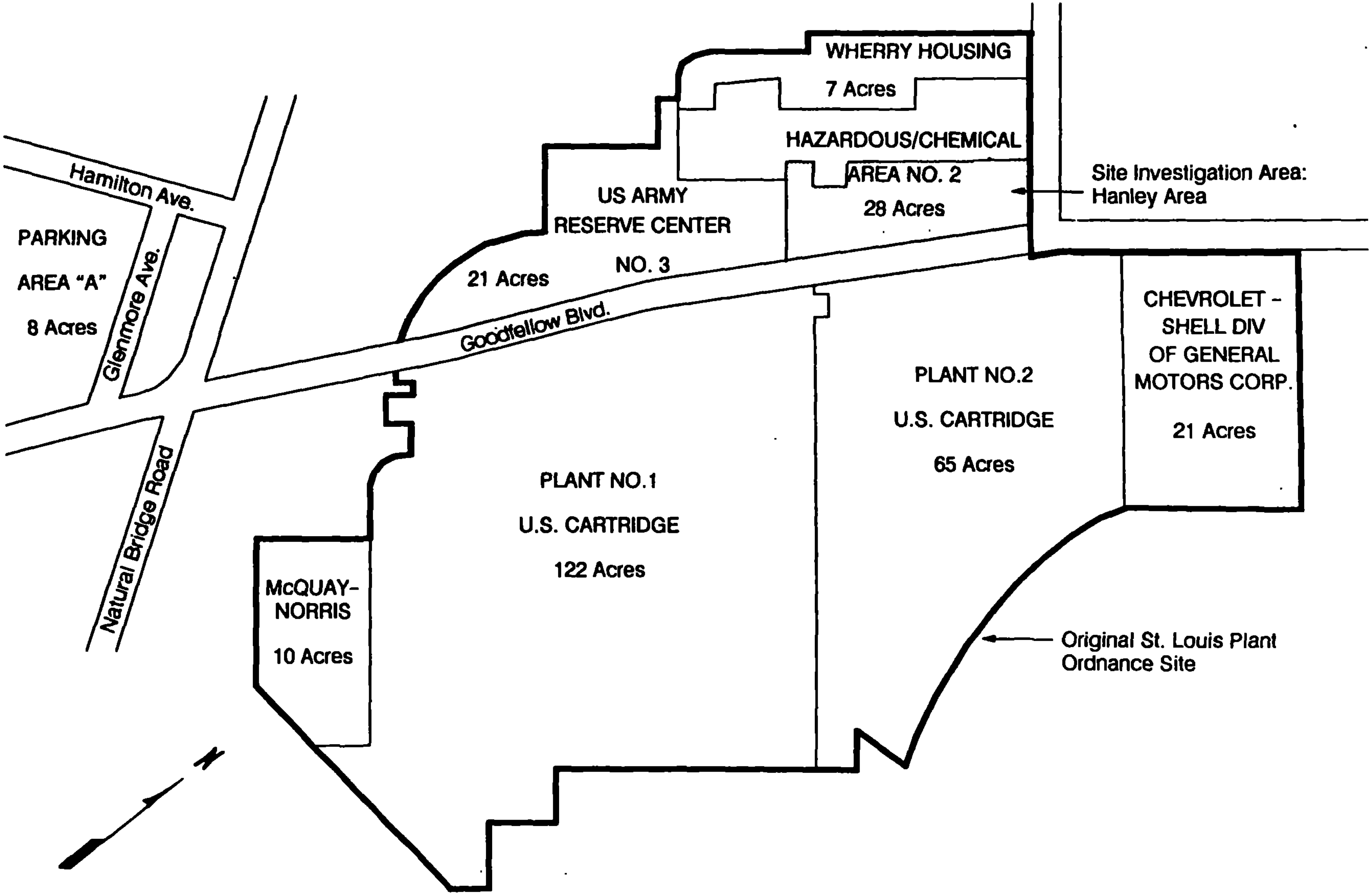


EXHIBIT 2-3

OUTLEASE MAP OF ST. LOUIS ORDNANCE PLANT



- The Mcquay-Norris Manufacturing Company manufactured cores for small arms ammunition in a 10-acre area located to the extreme south of the installation, south of Interstate-70 on Goodfellow Boulevard near Natural Bridge Road (Exhibit 2-3). This company is reported to have produced 8 billion cores.

- The Chevrolet-Shell Division of General Motors Corporation manufactured 105mm shells in a 21-acre plant, located in the northeastern part of the installation (Exhibit 2-3). This area was operated as the St. Louis Army Ammunition Plant (SLAAP).

1945	In 1945, SLOP was deactivated following the end of World War II. The U.S. Army Corps of Engineers (USACE) reportedly decontaminated all buildings having explosive contamination. Although no documentation of the decontamination procedures has been found, many buildings at SLOP bear markings of XXX, signifying 99.9% clean. This mark is used typically to indicate decontamination and inspection following decontamination to verify safety and absence of explosives contamination. With the exception of the powder wells that exist onsite, buildings and magazines located throughout the Hanley Area are so marked.
1945-1951	Following deactivation of the plant, an administrative center for the Army Service Forces, called the St. Louis Administration Center, occupied all property and buildings except the facilities used by McQuay-Norris. Installation buildings were used for maintaining and servicing records. During this period, the U.S. Army built the Wherry Housing Project, consisting of 120 apartments. This housing area is located west of the Hanley Area (Exhibit 2-3).
1951-1957	In 1951, the U.S. Army reactivated operations at SLOP in response to escalation of the Korean Conflict. The three previous contractors mobilized production of ammunition, cores and shells in the same areas of the installation previously used. In 1954, the U.S. Army placed the SLOP facilities producing shells (Chevrolet-Shell Division) on standby status. Small arms ammunition (U.S. Cartridge) and small arms ammunition core (McQuay-Norris) production continued until 1957 when the U.S. Army again deactivated SLOP.
1957-Present	Little information has been found on facility operations on the facilities located in the east side of Goodfellow Boulevard for this time period. Between 1966 and 1969, the Army reactivated the Chevrolet-Shell plant area, for the production of projectiles. These areas are located beyond the boundaries of the Hanley Area, and most have since been excessed and transferred to a variety of federal and city government agencies, including the General Services Administration (GSA). The area to the west of the Hanley Area was used by the Goodfellow U.S. Army Reserve Center (GUSARC) and is currently the site of a Department of Labor Job Corps Center.
1976	The US Army Reserve established a new Reserve Center that abuts the southern side of the Hanley Area on the west side of Goodfellow Boulevard. This facility consists of an administrative building, a vehicle maintenance shop, and a large open area immediately adjacent to the Hanley Area that is used as a helicopter landing area.
Present	In addition to the Reserve Center, the Job Corps Center, and the GSA buildings, other commercial, residential, and industrial areas currently exist in the vicinity of the Hanley Area.

2.1.2 Chronology of Operations - Hanley Area

Exhibit 3-2 (located in pocket B) depicts a site map of the Hanley Area and provides building numbers and locations that relate to the following discussion of site operations.

1941-1959 All discussion of activities prior to 1959 in the available reports encompass the entire 28 acres of Hazardous/Chemical Area No. 2 rather than providing any specific reference to the Hanley Area parcel. The history of activities occurring in the Hazardous/Chemical Area No. 2. prior to 1959 that may relate to the Hanley Area is summarized in this section. Activities during World War II include tracer bullet manufacture, primer manufacture, and explosive mixing and storage. In 1945, the USACE reportedly deactivated all buildings having explosives contamination. Following decontamination, the U.S. Army Finance Center used some buildings for classrooms. The Army reactivated the Area for small arms ammunition in response to the Korean Conflict. Although the Army installed machinery, production never commenced, and after the conflict, the Army removed and disposed of the machinery.

1959-1979 In 1959, Hanley Industries Inc. leased 14.7 acres of the Hazardous/Chemical Area No. 2; this area has since been known as the Hanley Area and is shown in Exhibit 2-4. Hanley Industries (Hanley) used the site for research, development, manufacture, and testing of various explosives and performed work in the design of explosive trains and components. Exhibit 2-5 lists explosive trains and components designed by Hanley, and operations occurring in the area included equipment for synthesis, receiving, drying, screening, mixing, loading, pressing, and testing of explosives. Additionally, Hanley loaded explosives into various component parts for both military ordnance and non-ordnance items. A list of items is given in Exhibit 2-6. Hanley used most of the buildings to load detonators, primers, and to mix explosives. Explosives were dried in magazines by leaving cans of explosives exposed to the air, and a lead azide reactor was operated in one of the magazines (exact location unknown). Reportedly, Hanley did not use the existing sumps or powder wells located on the property for wastewater disposal. Exhibits 2-7 and 2-8 provide summaries of the only information available on the uses of individual buildings in the Hanley area. Exhibit 2-9 provides a list of compounds utilized by Hanley Industries.

1979 The Army required Hanley to conduct decontamination of buildings as part of the lease termination. The decontamination procedures were not well documented, but apparently consisted of spray-washing of the walls in the buildings to a height of 8 feet above the floor. None of the magazines were spray-washed. Washdown wastewater from the cleaning operation was discharged onto the ground outside the buildings.

1979- The Department of Labor expanded beyond the former Goodfellow USA Reserve Center and with a view toward using the Hanley Area, demolished some of the bunkers. The following buildings and associated concrete barricade walls have been demolished and there is no visible evidence of their existence: 226 A to H, 228 N to S, 227 - T and 229 H, J, K, L, M, and N. The action to use more of the Hanley Area has stopped and DOL/Job Corps is using an area of 17.1 acres. As a result, the inactive remains of the Hanley Area has been reduced to 10.66 acres. No operations have been conducted in the Hanley Area since the withdrawal by Hanley Industries in 1979. The inactive status of the area has resulted in seriously degraded and vandalized facilities. The Army has fenced off the area to prevent public access.

EXHIBIT 2-4

SITE MAP -- HAZARDOUS/CHEMICAL AREA NO. 2, ST. LOUIS ORDNANCE PLANT

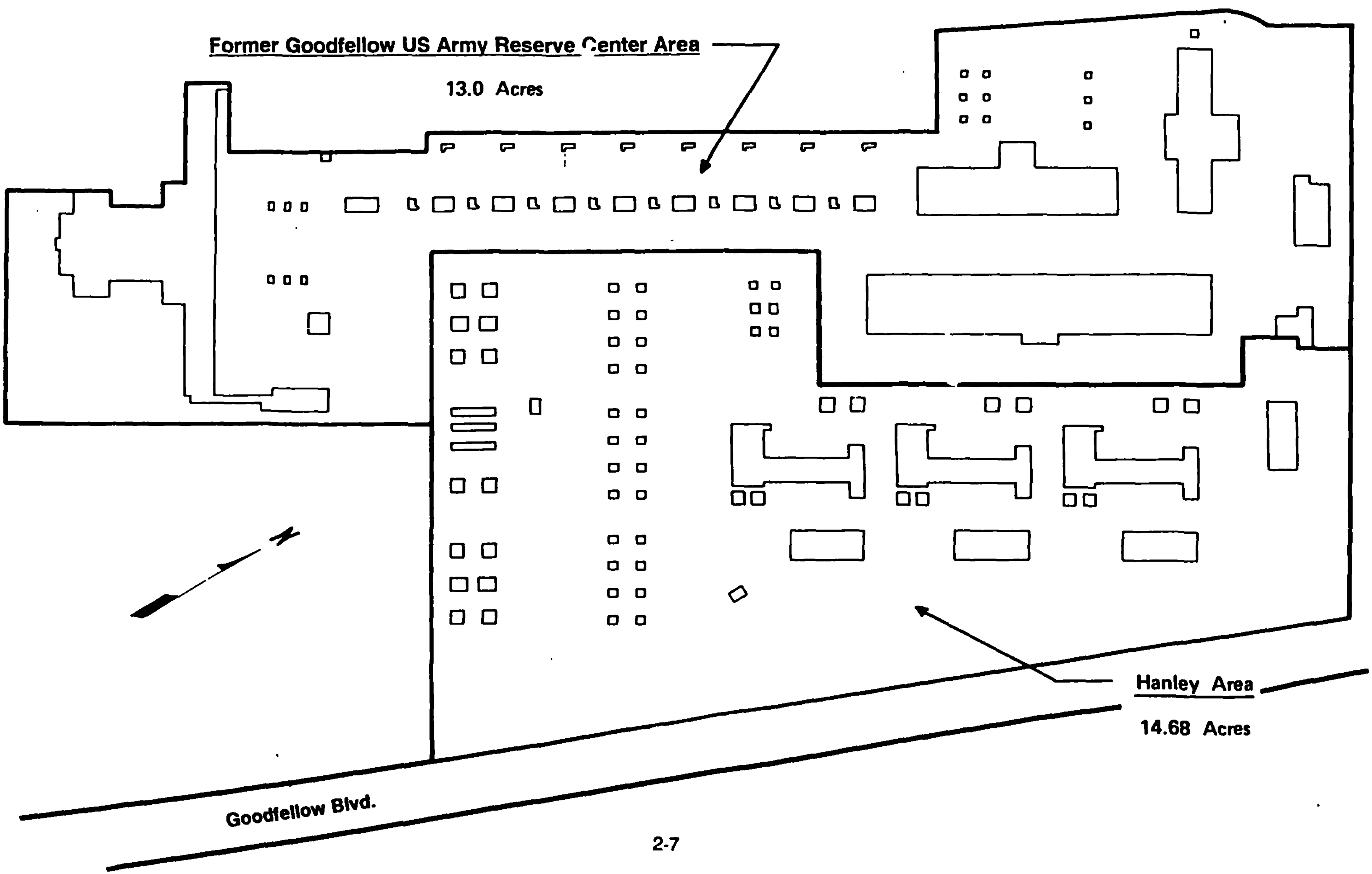


EXHIBIT 2-5

EXPLOSIVE TRAINS AND COMPONENTS THAT MAY HAVE BEEN PRODUCED BY HANLEY INDUSTRIES AT THE HANLEY SITE (1959–1979)

Explosive bolts

Cord cutters

Bolt cutters

Battery activation cartridges

Cartridges to spin up a gyroscope

Balloon inflaters

Bellows and piston motors

Pellets of explosives

Bailer tube expansion charges

Unusual primary explosives

Spotting charges for warheads

Explosive detents

Indicators

Smoke and flash signals

Explosive or squib switches

Cartridges to uncage a gyroscope

Boosters

Pyrotechnic delay cartridges and

Detonators to open lap belts

Deploy parachutes

High altitude sounding grenades

EXHIBIT 2-6

EXPLOSIVE COMPONENTS LOADED FOR THE MILITARY AND NASA BY HANLEY INDUSTRIES[1]

Delay cartridges
Leads
Detonators
Primers (electric and delay)
Squibs
Explosive Bolts
Activators
Bomb Initiators
Spotting charges
Boosters

1 No information was readily available as to the types or quantities of explosive components that were loaded at the Hanley site.

EXHIBIT 2-8

HANLEY AREA LIST OF BUILDINGS IN WHICH OTHER ACTIVITIES (OTHER THAN FOR LOADING AND MIXING OF EXPLOSIVES) WERE CONDUCTED

Bldg No.	Room No.	Usage
218A	All rooms not listed in Exhibit 2-7	Non-explosive storage
218B	Basement	Empty as non-explosive storage
218C	Basement	Burning of explosive contaminated rags
219A		Administrative
219D		Never used
219E		Lead azide production
219G		One time loading of explosives for disposal during cleanup operations
219B,C,F,H,J		Drying of explosives
All other magazines		Storage of explosives in sealed containers

EXHIBIT 2-9

COMPOUNDS USED AT HANLEY AREA

Compounds

- Lead Styphnate
- Tetryl (2,4,6-Trinitrophenylmethylnitramine)
- RDX
- NOL 130 (Primer mix having the following composition:

  — 20% lead azide,
  — 15% antimony sulfide, 20% barium nitrate, 40% lead styphnate, and 5% tetracene.)

- Al80 (Ignition mix)
- Black Powder
- HMX (Cyclotetramethylenetetranitramine)
- NOL 60 (Primer mix having the following composition:

  — 10% antimony sulfide, 25% barium nitrate, 60% lead styphnate, and 5% tetracene.)

- PETN (Pentaerythrite Tetranitrate)
- Tetracene
- Silver azide
- Smokeless powder
- Trinitroresorcinol
- Diazodinitrophenol
- Delay powder (dependent on the composition used, may contain the following compounds:

  — barium chromate, zirconium powder, nickel powder, potassium perchlorate, red lead, silicon powder, lead chromate, and manganese powder.)

- Tracer mixes (dependent on the composition used, may contain the following compounds:

  — strontium peroxide, magnesium powder, barium peroxide, strontium nitrate, strontium oxalate, magnesium carbonate, and aluminum powder.)

- Lead nitrate
- Sodium azide

Future Future plans for the study area include renovation and use of existing buildings (Buildings 219G, 219D, and 219A) by the US Army Reserve Center. The Army Reserve has expressed an interest in repairing and renovating these buildings for use as warehouse space. If this occurs, only occasional and short-term occupancy of the buildings by authorized Army personnel likely will occur. The Army Reserve also has expressed an intention to maintain and control the remaining portion of the Hanley Area. Other future uses of this area likely would include demolition and removal of buildings (other than the warehouses).

2.2 SITE CHARACTERISTICS

This section provides a description and discussion of the physical characteristics of the site.

2.2.1 Site Description

The Hanley Area is located on a relatively flat terrace covering most of the 14.7 acres, and includes a steep slope down to Goodfellow Boulevard along the East side. A series of warehouse buildings, bunkers, and related buildings are located on the flat portion. The site contains a number of underground rooms, tunnels for service utilities, an underground wastewater collection system, and a stormwater collection system. A paved service road runs south-north along the east side of Buildings 219G, 219D, and 219A. The grounds at the site appear clean although the buildings show advanced signs of aging and neglect. A site map located in Pocket B (see Exhibit 3-2) shows details of the site layout for the Hanley Area.

All of the buildings present in the Hanley area have been stripped of equipment and this work, together with lack of maintenance, has left former production Buildings 218A, 218B, and 218C; warehouse Buildings 219A, 219D, 219G; and the frame buildings located inside the concrete-walled explosive containment bunkers in a state of poor repair. The massive concrete walls of the bunkers appear to be in relatively good condition.

A site drawing in Pocket A (see Exhibit 3-1) shows the underground tunnel system. The tunnels are constructed of reinforced concrete with approximate interior cross-sectional dimensions of 8 ft. wide x 8 ft. high, and connect to the basements of most of the buildings within the Hanley Area. The horizontal tunnels change elevation at abrupt intervals as required to maintain an elevation of 10-12 feet below the topographic surface. A stair-cased entrance or vent to the surface and a sump-like low area occurs at each point where the tunnel elevation changes. (One vent -- allowing access to the entire tunnel system -- is located off-site along the east side of Goodfellow Boulevard. The tunnels have been blocked off between the Hanley Area and the area occupied by the Job Corps Center.) Other tunnel entrances exist in the basements of several buildings within the area. After large rain events, standing water occurs on the tunnel floors in low areas, principally within low areas where the tunnels change elevation.

The tunnels contain overhead pipes and pipe races along the tunnel walls, and many of these piping systems are covered with insulation. Utility pipes include water and steam. (One of the pipes -- obviously a water supply line -- was observed to be leaking during site visits in 1989 and 1990). The steam pipes are wrapped with asbestos-containing insulation, which shows signs of disrepair.

2.2.2 Physical Setting

The St. Louis Ordnance Plant is located on the western boundary of the city limits of St. Louis, Missouri and adjacent to St. Louis County. The facility lies approximately three miles west of the Mississippi River and 0.25 miles south of the intersection of Interstate 70 and Goodfellow Boulevard. (Exhibit 2-1).

The Hanley Area comprises 14.68 acres located within the 28-acre parcel formerly known as Hazardous Chemical Area No. 2. The Hanley Area is situated on a broad terrace with an elevation of approximately 550 feet above mean sea level. Surface runoff from the Hanley Area enters the city storm drainage system and flows eastward toward the Mississippi River. The topographic relief between SLOP and the Mississippi River to the east is approximately 150 feet.

Site Physiography

The St. Louis area is located on the northwestern flank of the Ozark Plateau in the Dissected Till Plains Physiographic Province (Exhibit 2-10). The St. Louis area has been a receiving basin for sediments for most of its geologic history. The stratigraphy of the geologic formations underlying this area are characterized as sedimentary formations. Hunt (1974) characterizes the Ozark Plateau as a broad uplifted area exposing early Paleozoic formations. Miller (1974) describes the Dissected Till Plain as a gently undulating surface with altitudes ranging from 500 to 700 feet. Glaciers covered the area twice during the Pleistocene. The study area lacks typical morainal topography of glaciated surfaces. Till deposits in the area are relatively thin.

Bedrock Geology

The bedrock geology of the St. Louis area consists of essentially flat-lying sedimentary rocks, mostly limestone and dolomite which were deposited in shallow epicontinental seas. The forces that produced the Ozark uplift controlled the regional structure of the rocks in the area. The apex of this activity forms the core of the St. Francois Mountains to the southwest (Howe, 1961). The St. Louis area has a monocline structure that gently dips to the northeast at an average rate of 55 feet per mile (Gleason, 1935).

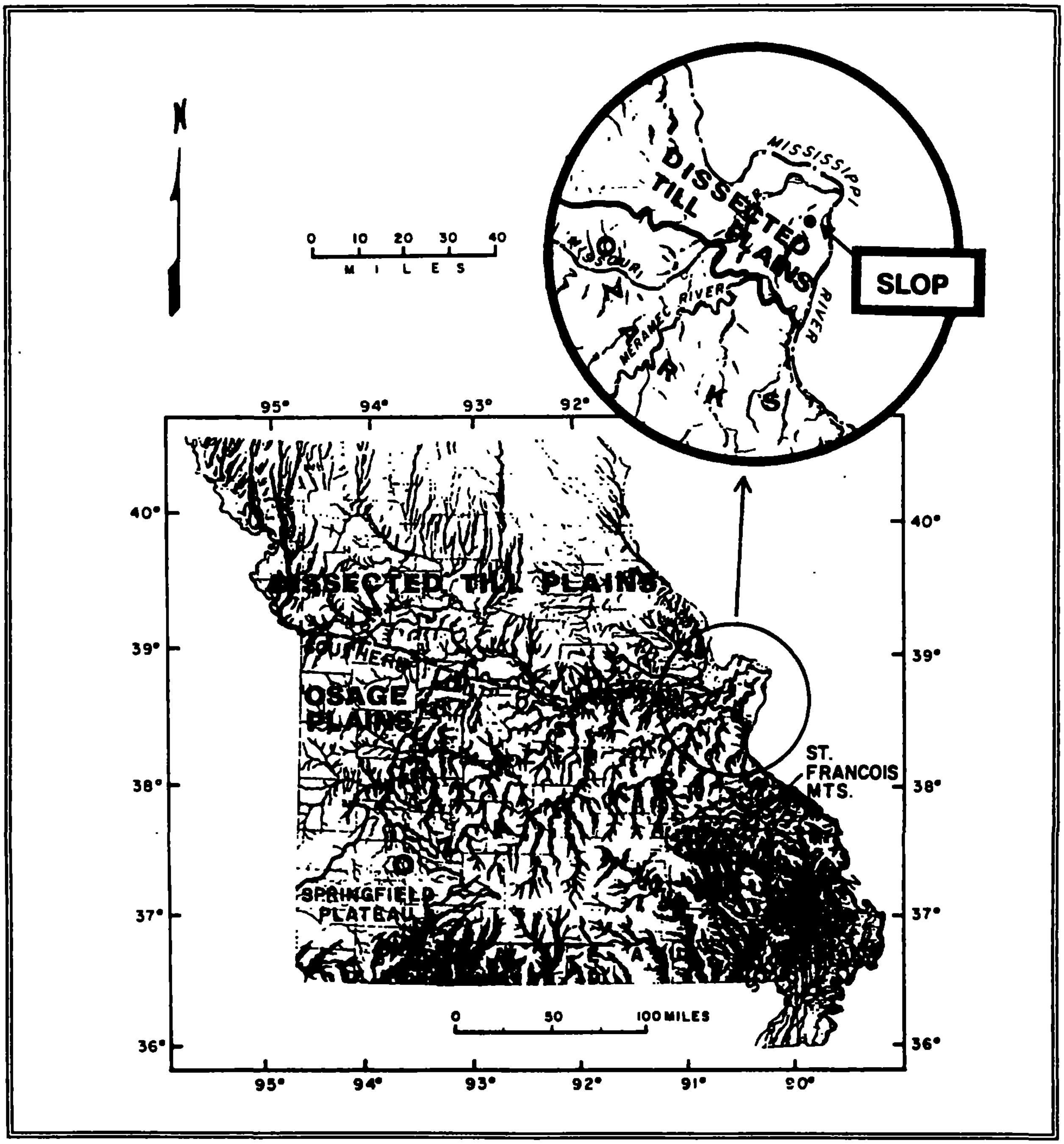
The structural attitude of the beds result from the compressional, tensional, and uplifting forces that have displaced and altered the beds from their original depositional positions (Miller, 1974). The combination of these forces have altered the beds so that presently a series of faults and fractures exist throughout the region. Locally, a number of faults are present both to the east and to the west of the Hanley Area of SLOP. Exhibit 2-11 illustrates the approximate locations of these faults and structural features.

The geologic formations in the St. Louis area range in age from Ordovician (430 million years before present (mybp)) to middle Pennsylvanian (300 mybp). Early Pennsylvanian age rocks of the Marmaton and Cherokee Groups make up the strata beneath the Hanley Area. Exhibit 2-12 presents a generalized stratigraphic column for St. Louis County, Missouri. These strata consist of mostly shale, but also contain thin, and not laterally continuous layers of clay, limestone, sandstone, and coal. Compared to the Cherokee group below, the Marmaton contains more limestone units which are thicker and more persistent (Howe, 1961). The Pennsylvanian units in the vicinity of SLOP have a thickness of less than 100 feet.

Mississippian age rock of the St. Louis and St. Genevieve Formations lie unconformably beneath Pennsylvanian strata. A gray lithographic to finely crystalline, medium to massively bedded limestone more than 100 feet thick characterizes the St. Louis formation (Howe, 1961). Thin shale beds are common, and in places the St. Louis formation is dolomitic. Howe (1961) describes the St. Genevieve formation as white, massively bedded, sandy, clastic limestone. It is generally coarsely crystalline and oolitic and contains a few beds of finely crystalline limestone. Additionally, the St. Genevieve may in

EXHIBIT 2-10

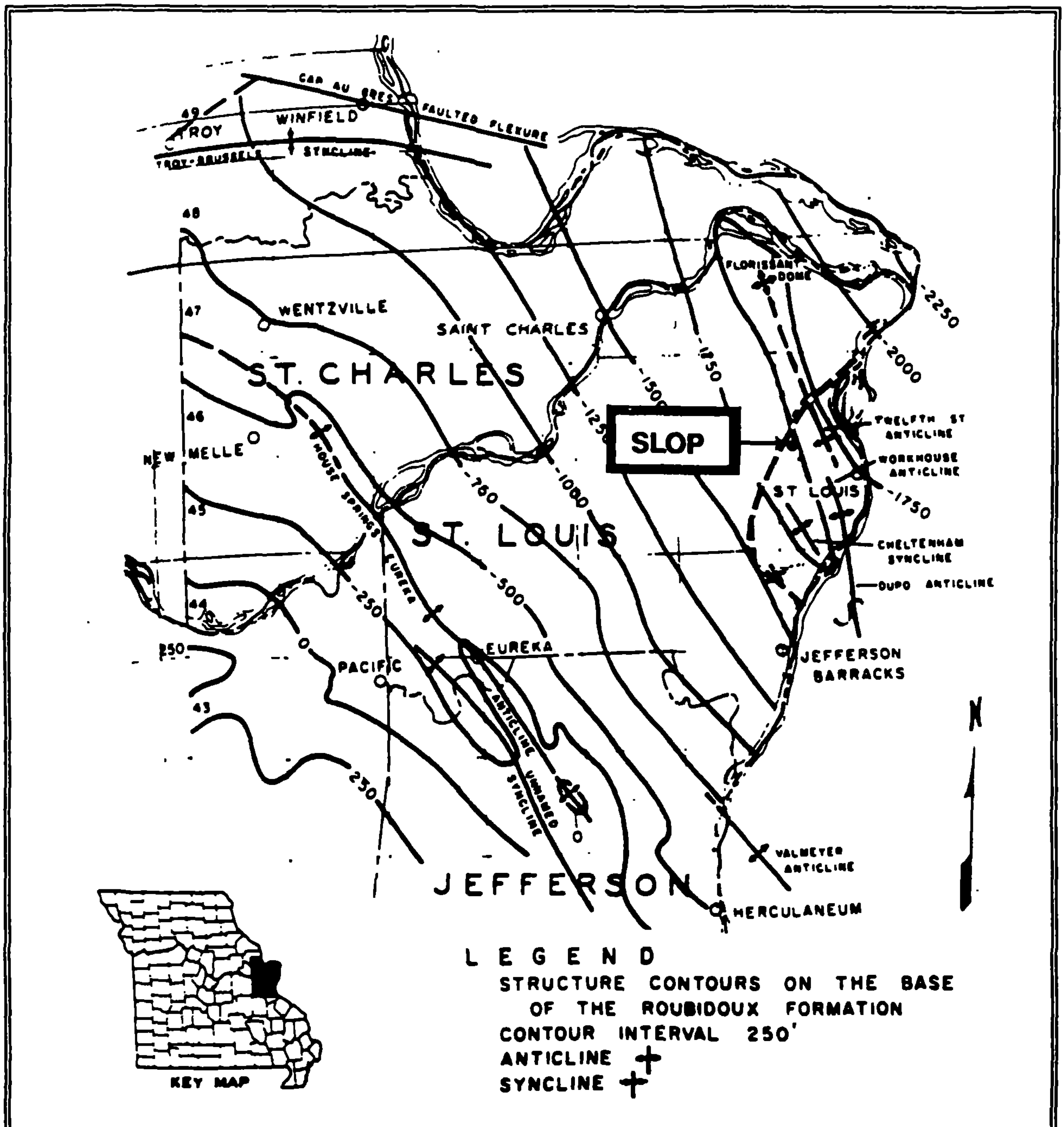
PHYSIOGRAPHY OF STUDY AREA



From: Miller, D.E., et al., 1974, Water Resources of the St. Louis Area, Missouri: Missouri Geological Survey and Water Resources, WR. 30.

EXHIBIT 2-11

GEOLOGIC FEATURES OF ST. LOUIS COUNTY AND VICINITY



From: Martin, J.A., and Wells, J.S., 1966, Guidebook to Middle Ordovician and Mississippian Strata, St. Louis and St. Charles Counties, Missouri, 1966 Annual Meeting, American Association of Petroleum Geologists, Report of Investigation, No. 34.

EXHIBIT 2-12

GENERALIZED STRATIGRAPHIC COLUMN FOR ST. LOUIS COUNTY, MISSOURI

System	Series	Group	Formation	Aquifer Group	Thickness (feet)	Dominant Lithology	Water-bearing Character
Quaternary	Holocene		Alluvium[1]		0-150	Sand, gravel, silt, and clay	Some wells yield more than 2,000 gpm.
	Pleistocene		Loess Glacial till		0-110 0-55	Silt Pebbly clay and silt	Essentially not water yielding.
Pennsylvanian	Missourian	Pleasanton	Undifferentiated		0-75	Shales, siltstones, "dirty" sandstones, coal beds and thin limestone beds	Generally yields very small quantities of water to wells. Yields range from 0-10 gpm.
		Marmaton	Undifferentiated		0-90		
	Desmoinesian	Cherokee	Undifferentiated		0-200		
	Atokan		Undifferentiated				
Mississippian	Meramecian		St. Genevieve Formation		0-160	Argillaceous to arenaceous limestone.	
			St. Louis Limestone		0-190		
			Salem Formation		0-180		
			Warsaw Formation		0-110		
	Osagean		Burlington-Keokuk Limestone		0-240	Cherty limestone	
			Fern Glen Formation		0-105	Red limestone and shale.	
	Kinderhookian	Chouteau	Undifferentiated	1	-122	Limestone, dolomitic limestone, shale, and siltstone.	Yields small to moderate quantities of water to wells. Yields range from 5 to 50 gpm. Higher yields are reported for this interval locally.
Devonian	Upper	Sulphur Springs	Bushberg Sandstone		0-60	Limestone and sandstone	
			Glen Park Limestone				
			Grassy Creek Shale		0-50	Fissile, carbonaceous shale.	
Silurian			Undifferentiated		0-200	Cherty limestone	
Ordovician	Cincinnatian		Maquoketa Shale		0-163	Silty, calcareous or dolomitic shale.	Probably constitutes a confining influence on water movement.
			Cape Limestone		0-5	Argillaceous limestone.	
	Champlainian		Kimmswick Formation		0-145	Massive limestone	
			Decorah Formation		0-50	Shale with interbedded limestone.	Yields small to moderate quantities of water to wells. Yields range from 3 to 50 gpm. Decorah Formation probably acts as a confining bed locally.
			Plattin Formation	2	0-240	Finely crystalline limestone.	
			Rock Levee Formation		0-93	Dolomite and limestone, some shale.	
			Joachim Dolomite		0-135	Primarily argillaceous dolomite.	
			St. Peter Sandstone	3	0-160	Silty sandstone, cherty limestone grading upward into quartzose sandstone.	Yields moderate quantities of water to wells. Yields range from 10-140 gpm.
			Everton Formation		0-130		
	Canadian		Powell Dolomite		0-150	Sandy and cherty dolomites and sandstone.	Yields small to large quantities of water to wells. Yields range from 10 to 300 gpm. Upper part of aquifer group yields only small amount of water to wells.
			Cotter Dolomite		0-320		
			Jefferson City Dolomite	4	0-225		
			Roubidoux Formation		0-177		
			Gasconade Dolomite Gunter Sandstone Member		0-280		
Cambrian	Upper		Eminence Dolomite		0-172	Cherty dolomites, siltstones, sandstone, and shale.	Yields moderate to large quantities of water to wells. Yields range from 10 to 400 gpm.
			Potosi Dolomite		0-325		
		Elvins	Derby-Doerun Dolomite	5	0-165		
			Davis Formation		0-150		
			Bonneterre Formation		245-385		
			Lamotte Sandstone		235+		
Precambrian						Igneous and metamorphic rocks.	Does not yield water to wells in this area.

[1] Basal part may be of Pleistocene age.

NOTE: Stratigraphic nomenclature may not necessarily be that of the U.S. Geological Survey.

From: Miller, D.E., et al., 1974, Water Resources of the St. Louis Area, Missouri: Missouri Geological Survey and Waste Resources, WR. 30.

places contain lenses of chert and sandstone. In St. Louis County, the formation is approximately 30 feet thick. A disconformable contact exists between the St. Louis and the overlying St. Genevieve, with a basal conglomerate present in places.

A literature review and information gathered from borings in the vicinity of the SLOP facility indicates that bedrock occurs at a depth of approximately 20-30 feet beneath the ground surface. Bedrock at SLOP lies beneath unconsolidated sediments of the Harvester Complex, a characteristically moist sediment that lacks significant amounts of water. The bedrock contains Pennsylvanian age shales and clayey shales of Cherokee Group. These units are expected to be approximately 70 feet thick. Exhibit 2-13 presents a geologic map of the study area.

Almost all bedrock formations in the St. Louis region were covered by laterally extensive deposits of windblown silt (loess) derived from the floodplain of the Missouri River during the Pleistocene glaciation. Vertically, the area's loess deposits are relatively thin.

Climate

The climate in St. Louis County is characteristic of temperate continental, with warm-to-hot summers and cool winters. The heaviest rains occur in spring and early summer, when moist air from the Gulf of Mexico interacts with drier continental air (Soil Conservation Service, 1979).

The daily temperature for the St. Louis area averages about 55 degrees Fahrenheit (°F). The temperature averages about 33°F in winter, and about 77°F in the summer. The growing season for most crops extends from April to September.

Total annual precipitation is 33.8 inches, with the greatest amount falling in June. Average seasonal snowfall for the region is 18 inches, with most accumulation occurring in March. Wind prevails from the south. Wind speed is highest in March, averaging 12 miles per hour.

Soils

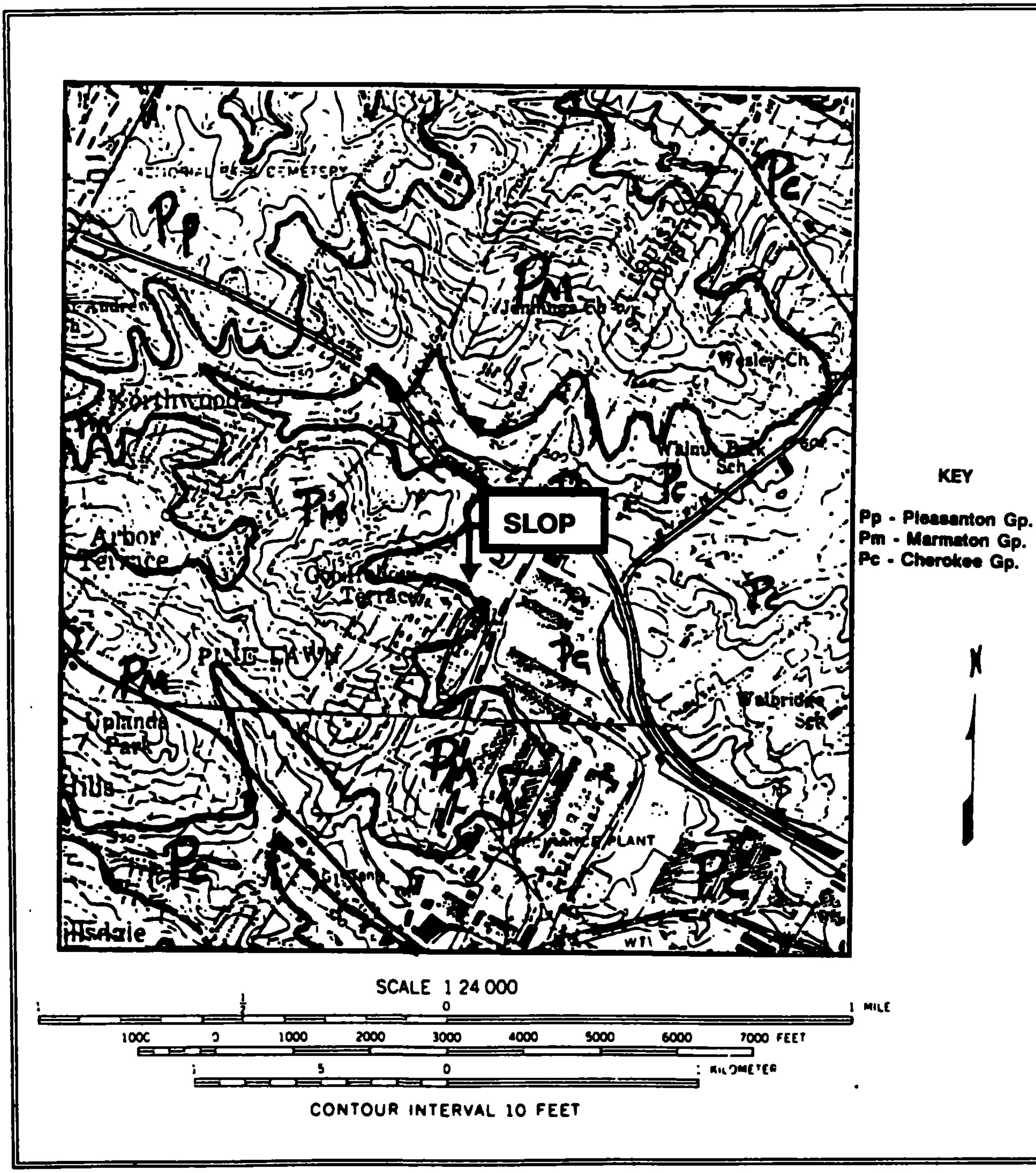
The soil matrix at the Hanley Area of SLOP has been characterized and mapped by the Soil Conservation Service (SCS) as Urban Land, upland, with 0 to 5 percent slopes. SCS describes this classification as surfaces composed of greater than 85 percent manmade, impervious materials. Typically, these soils have been extensively reworked and reshaped. Many construction activities at the facility leveled much of the site's original topography. The SCS has not performed detailed on-site investigation and classification of the soils in the Hanley Area due to the lack of access to the site.

Immediately adjacent to the contour boundaries of the Urban Land map unit, in all directions, lies the Urban Land-Harvester Complex. Harvester soils consist of deep, moderately drained soils on uplands. These soils were formed in 12 to 40 inches of reworked loess fill material over truncated or buried loess soils. These soils have moderately slow permeability.

Typically, the surface layer of the Harvester soil consists of about 4 inches of brown silt loam. The next layer, to a depth of approximately 37 inches consists of multicolored silt loam material that contains fragments of bricks, glass, cinders, and other manmade materials. The lower part of a buried soil remains below the reworked fill material, to a depth of approximately 60 inches. It is a dark yellowish brown, mottled, firm, silty, clay, loam. At heavily reworked areas, most or all of the original soil has been removed.

EXHIBIT 2-13

GEOLOGIC MAP OF THE STUDY AREA



From: State of Missouri, Geological Survey and Water Resources (Preliminary, not field checked).

Hydrogeology

Groundwater in the vicinity of the Hanley Area occurs primarily in fractures, solution cavities, and along bedding planes of the Mississippian limestone strata that lie beneath the younger Pennsylvanian rocks at SLOP. Generally, the Pennsylvanian shales of the area are relatively impermeable, and yield very little water. However, the Cherokee Formation is an exception which may contain small amounts of groundwater in the thin sandy shales and sandstone units that comprise this formation (Gleason, 1935).

It is expected that groundwater at the Hanley Area could be encountered at a depth of approximately 80 to 120 feet beneath the surface, at the base of the Pennsylvanian strata. Additionally, it is likely that one or more perched systems exist within the Pennsylvanian formations, although these systems are expected to be quite thin and very poor producers (Exhibit 2-14). Groundwater wells in the St. Louis area (Mississippian rock units) are classified as low producers with an average yield of less than 50 gallons per minute.

2.3 PREVIOUS INVESTIGATION

2.3.1 Overview

A site investigation was conducted for USATHAMA by Battelle Columbus Laboratories in 1979 when the Department of Labor identified the Hazardous/Chemical Area No. 2 as a potential site for placement of the Jobs Corps Center. The Battelle study encompassed both the Hanley Area and the former GUSARC area (currently the site of the Job Corp Training Center). The purpose of the investigation was to ascertain whether residues remained after previous decontamination efforts, and the suitability of the property for release to the Department of Labor.

Battelle conducted the investigation in two phases. The GUSARC area investigation occurred from January-May of 1979, and the Hanley Area investigation occurred from August-November of 1980. Battelle's survey efforts included a site survey and visual inspection, and selected field sampling for heavy metals and explosives contamination. In June, 1981, USATHAMA released a report containing the results of these surveys and additional information on historical use of the property.

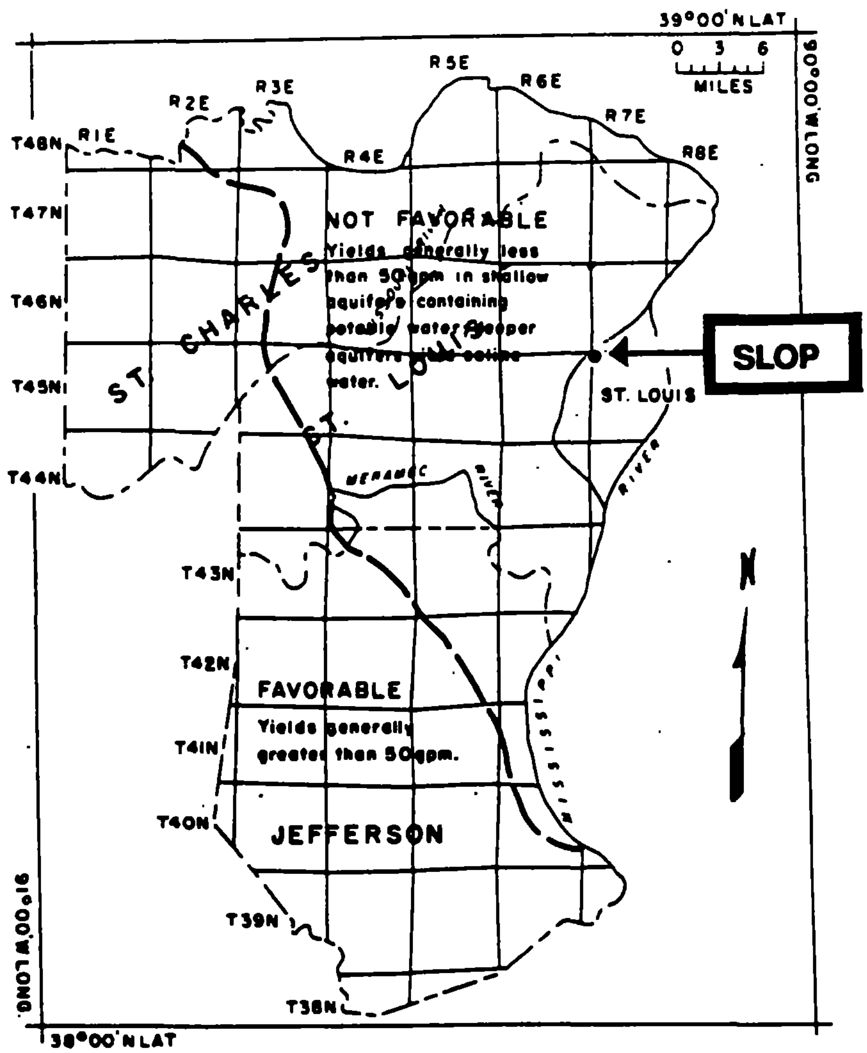
2.3.2 Historical Investigation

The historical investigation consisted of a records search and interviews with current and former employees. The records review included searching the National Personnel Records Center, St. Louis, MO; Industrial Social Division of the National Archives, Washington, DC; Washington National Records Center, Suitland, MD; Offices of the Kansas City District Corps of Engineers, Kansas City, MO; and the Historical Office of the Army Armament Readiness Command, Rock Island, IL. Documents specific to building and magazine usage and site decontamination were not located.

Exhibit 2-15 summarizes information on site operations in the Hanley Area from Hanley employees and the records review. Exhibit 3-2 (Pocket B) provides a map showing the locations of the buildings and related structures. Hanley reportedly did not use the powder wells for wastewater disposal, but used some of the on-site magazines for storage of explosives and other materials and used several of the buildings for munitions production and storage activities. All explosive wastes generated by Hanley were reported to have been transported to Ft. Leonard Wood for disposal (USATHAMA, 1981).

EXHIBIT 2-14

YIELDS FROM BEDROCK AQUIFERS



From: Miller, D.E., et al., 1974, Water Resources of the St. Louis Area, Missouri: Missouri Geological Survey and Water Resources, WR. 30.

2.3.3 Visual Survey

A visual survey of the grounds, buildings, and tunnels in 1980 located several detonators that have since been removed. Inspection of the buildings in the Hanley Area indicated that in several cases interior building walls were constructed of hollow tile in which explosive residues could have accumulated. It is not known whether samples from these areas have been analyzed for explosives.

2.3.4 Results of Prior Investigations

Sampling and analysis activities in the Hanley Area were initiated in August 1980, shortly after Hanley personnel reportedly completed decontamination procedures. Field activities included the sampling of seven buildings, 54 magazines, five sewer pipe locations and the contents of 28 powder wells. Samples were analyzed for heavy metal and explosive residues. Surface spot-spray screening and swab samples were used to locate contamination from explosives residuals, and wipe samples were collected from surfaces in each of the buildings and magazines for metals analysis. Samples from a given area were composited and analyzed by atomic absorption spectroscopy for lead, silver, nickel, mercury, chromium, and cadmium.

The results of the 1980 survey indicate that areas of potential contamination include building surfaces, powder wells, sewers, and other structures associated with munitions production, packing, or storage activities. Contaminants found include both explosive residues and heavy metals.

Building Survey

Building swipe surveys for selected metals were conducted by compositing swab samples obtained from the floor, walls, and baseboard surfaces of each building. The results of these metal analyses generally agree with the historical building usage (e.g., sources of metals associated with primer and tracer mixing operations using metal-based compounds). Concentrations of chromium in building swipe surveys ranged from 26 to 515 $\mu g/m^2$. The maximum chromium concentration was found in Building 228E. Lead concentrations ranged from 800 to 27,200 $\mu g/m^2$. The maximum lead concentration was found in Magazine 219C, which records indicate was the location of a Hanley lead azide reactor. Exhibit 2-16 provides a map that shows buildings/magazines where metal contamination was found above detection limits. Exhibit 2-17 provides tabular data on the results of the metals survey.

Sampling of the buildings and magazines for explosives contamination involved two methods. A screening survey was performed by use of spot sprays containing reagents that provide color responses in the presence of certain explosive compounds. Surfaces of walls, vents, pipes, drains, window sills, ceiling fixtures, machinery, shelves, and floors where contamination may have collected were surveyed in this manner. Swab samples were then collected near each location where spot sprays generated positive results. These samples were composited by magazine group or individual building for laboratory chemical analysis.

Samples also were collected from the "powder well" sumps which accumulated drainage from many of the buildings and which reportedly had not been decontaminated. One-liter samples from each of the 28 powder wells were collected and composited into 9 samples according to building or magazine group. Samples were analyzed for explosive constituents.

Several buildings/magazines exhibited contamination from explosive residues. Positive results were obtained from spot spraying and verified by laboratory analyses in buildings and magazines labeled 218A, 218B, 218C, 219C, 219H, 220, 227A, 227B, 227J, 227M, 2270, 228C, and 228F. Explosive compounds were not detected in any of the powder well samples except those receiving effluent from

EXHIBIT 2-17

HEAVY METAL ANALYSIS OF STRUCTURES IN THE HANLEY AREA

	Pb	Ag	Ni	Hg	Cr	Cd
BLDG./MAGAZINE RESULTS	µg/m²					
218A	17,300	4.3	61	<0.2	343	102
218B	4,920	8.6	74	<0.2	310	<25
218C	5,080	7	147	<0.2	449	<25
219A	820	3.7	22	32	64	<25
219B	3,330	4.6	55	<0.2	126	<25
219D	1,920	8	64	<0.2	232	100
219E	27,200	24	30	<0.2	92	<25
219G	1,900	10	84	1.7	293	<25
219J	4,220	9.8	147	<0.2	364	28
220	5,850	7.5	100	0.9	434	54
227(E)[1]	4,180	4.2	59	<0.2	170	<25
227(M)[2]	2,870	3.2	33	<0.2	95	<25
228(E)	4,020	4.7	59	<0.2	300	<25
228(M)	2,870	3.9	53	<0.2	222	<25
236	6,180	5	40	<0.2	172	<25
SEWER RESULTS	µg/L (ppb)					
430	18	<0.5	115	<0.4	<5.0	<0.5
432	270	<0.5	14	<0.4	<5.0	1.2
434	190	<0.5	<10	<0.4	<5.0	3.3
436	<10	<0.5	<10	<0.4	<5.0	<0.5

[1]E=east.
[2]M=mid.

Buildings 218A and 218B, which contained 4.0 and 4.6 ppb of tetryl, respectively. Explosives contamination results also generally agree with historical building usage. Exhibit 2-18 provides a map showing structures at the Hanley area where explosive contamination was found above detection limits, and Exhibit 2-19 lists the analytical data for these buildings.

Sewer Survey

Samples of water at five sewer locations in the Hanley Area were collected for explosives and metals analysis. The sewers at these locations drained powder wells, buildings, and magazines for both the Hanley and the GUSARC Areas. No concentrations above the detection limits were found for silver, mercury, and chromium. Lead concentrations ranged from below detection limit (bdl) to 230 μg/L and nickel concentrations ranged from bdl to 115 μg/L. None of the sewer samples exhibited concentrations of explosives above detection limits. Although the sampled sewer lines were indicated on a map, exact correlation of results to sewer location was not possible.

The investigative effort conducted in the adjacent GUSARC area also entailed wipe sampling of interior surfaces of buildings (total of 41), bunkers (7), and multiple-chamber powder sumps (9) for heavy metals and explosives contamination. Wipe samples, sludge, dust, and water samples were collected. Heavy metals residues were found to be present on the interior walls of most of the GUSARC buildings and bunkers. Contamination from explosives was found in the floor drains of several buildings.

EXHIBIT 2-18

HANLEY AREA FACILITIES CONTAMINATED WITH EXPLOSIVES RESIDUES

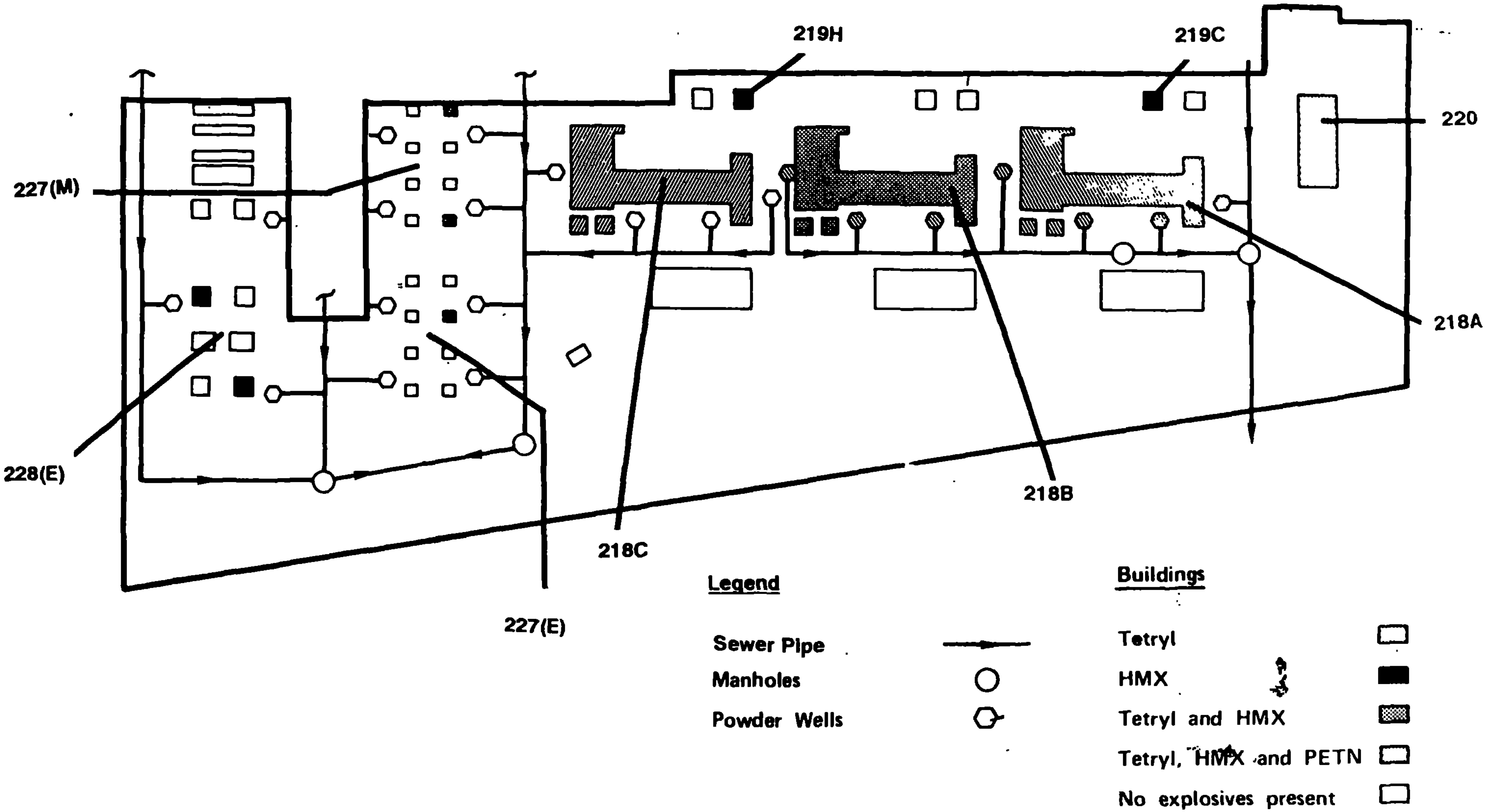


EXHIBIT 2-19

EXPLOSIVES ANALYSIS OF STRUCTURES IN THE HANLEY AREA

	TETRYL	PETN	HMX
BLDG./MAGAZINE RESULTS	$\mu g/cm^2$		
218A	+[1]	<1.0	0.0075
218B	+	<1.0	3.8
218C	+	ND	ND
219C	<1.0	<1.0	0.0120
219H	<1.0	<1.0	0.0120
220	+	<1.0	0.0075
227(M)[2]	+	<1.0	2.1
227(E)[3]	<1.0	<1.0	0.029
228(E)	<1.0	<1.0	0.0083
218C(B03)	ND	+	0.35
POWDER WELLS[4] RESULTS	ppb		
PW0218A	4.0	<1.0	0.0075
PW0218B	4.6	<1.0	0.0075

[1](+) = positive (Detection Limit 1 $\mu g/cm^2$).

[2](M) = Mid.

[3](E) = East.

[4]Powder well samples were composited from the powder wells existing outside buildings 218A and 218B, respectively.

3.0 CURRENT SITE INVESTIGATIONS

Previous studies have shown that building surfaces and waste handling system components contain explosives and metal residues associated with prior use of the facilities. However, the available data was insufficient to evaluate the potential for adverse impacts and to determine cleanup requirements. The present study was performed to provide supplemental data on the nature and extent of contaminated media and structures within the Hanley Area, specifically related to determining the need for remedial measures. Sampling was planned to quantify potential contamination in soil and groundwater, and within the tunnel system. Field sampling activities are described in the following sections and are summarized as follows:

- A screening survey was performed and samples collected to determine the extent of ACM within the buildings and tunnel system;
- Soil samples were collected across the site to evaluate the presence of contamination potentially affecting surface runoff and groundwater; and
- Samples were collected from standing water within the tunnel system (the only surface water source present at the site) as an indicator of whether off-site migration via surface routes is occurring. No substantial sediment deposits were encountered within the concrete tunnels.

A second phase of the study was planned to install four groundwater monitoring wells if the results of the soil and tunnel sampling indicated a significant potential for groundwater contamination.

No problems were encountered in sampling and analysis activities associated with the ACM survey. However, problems with data validation occurred with samples collected for chemical characterization of soils and tunnel water. The initial samples were collected in June, 1989, and submitted to a laboratory selected by USATHAMA for explosives and metals analysis. Considerable difficulties were encountered in obtaining results from the laboratory and, when preliminary data were made available in January, 1990, serious questions were raised about analytical validity both by USATHAMA and ICF KE quality assurance personnel. After thorough review, questions remained about the integrity of the laboratory results, and the analytical data from this initial sampling was declared invalid in July, 1990. In September, 1990, ICF KE collected a second set of soil and water samples which were analyzed without incident by a different USATHAMA-certified laboratory. The description of sampling activities given below addresses only the second sampling event.

Considerable changes have occurred at the site since the second sampling event, especially with respect to the tunnel system and a transformer at the site identified as having contained PCBs. It is the intent of this report to explain what was observed in July, 1990 as well as documenting events that have occurred since then which have served to improve environmental conditions at the site.

3.1 BUILDING AND TUNNEL ASBESTOS SURVEY AND SAMPLING

A screening survey was performed to determine the prevalence of ACM in the Hanley Area and the magnitude of problems these materials would pose for future remedial measures at the site. The survey and bulk sampling performed was not intended to be comprehensive in nature during this initial asbestos location survey.

The ACM survey was conducted in the Hanley Area during the period of June 28-30, 1989. The survey entailed evaluating the presence of ACM in all above-ground buildings, indoor and outdoor utility pipes, and subterranean spaces (tunnels, crawl spaces, and basements). All piping and structures potentially containing asbestos were visually inspected, traced and color-coded, and samples were collected from each representative matrix. Eleven samples were submitted to CETCO Laboratory in Weymouth, MA, for analysis by polarized light microscopy in combination with dispersion staining techniques (PLM-DS) to identify whether asbestos was present and the type and approximate amount of major constituents.[1]

Samples for ACM analysis were collected using standard protocols that minimize the potential introduction of asbestos fibers into ambient air. Each sampling location was wetted liberally with water prior to sample collection, and the damaged area was repaired and covered with adhesive plastic tape. For insulation materials, an entire cross section was sampled with a cork-boring tool, whereas samples of roofing and floor materials were simply torn or broken off. Each sample was placed in a 50-mm covered petri dish, labeled, and sealed inside a polyethylene bag for shipment to the laboratory.

The locations of samples collected for asbestos analysis are shown in Exhibit 3-1 (see Pocket A). Sample identification and a description of sampling locations are provided with the analytical results in Section 6.

3.2 TUNNEL SYSTEM WATER SAMPLING

Standing water within the tunnel system was collected at two locations. Samples were obtained near the point where each major branch of the tunnel system exits the Hanley Area, from the sump-like collection basin that exists at the lower level of elevation changes in the tunnel floor. The tunnel sampling sites are located on the extreme eastern and northern portions of the tunnel system. Samples of the standing water were analyzed for the Target Analyte List (TAL) of inorganic contaminants, explosives, and the Target Compound List (TCL) of organic constituents. Exhibit 3-2 (Pocket B) shows the location of samples collected from the tunnels.

Protocols approved by USATHAMA were used to collect the water samples from the underground tunnel system. Prior to sampling, all sampling equipment was thoroughly cleaned with USATHAMA-approved deionized water. The pH, conductivity, and temperature at each location was measured and recorded in a bound logbook, along with the total depth of standing water, time of sampling, and any other observations. All samples were collected by submerging the appropriate sample container (cleaned according to USATHAMA protocols) into the standing water, in such a manner that disturbance of the water surface was minimized. Sample containers and caps were triple-rinsed with the sample water prior to filling.

Samples were collected in order of decreasing volatility, with samples to be analyzed for volatile organic constituents (VOCs) collected first into 60 mL amber glass vials with screw caps and septa. Semivolatile organic/explosives samples were collected in 1-liter wide-mouth amber glass bottles with Teflon-lined lids. Samples for metal analysis were collected into 1-liter plastic cubitainers, and preserved with nitric acid to a pH ≤ 2. Samples for cyanide analyses were collected in 1-liter plastic cubitainers, and

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[1]Since the ICF KE survey, personnel from the Directorate of Engineering and Housing, Ft. Leonard Wood collected 34 additional samples in October 1989 from warehouse Buildings 219A, 219D, and 219G. ECOSAFE Incorporated (Durham, NC) conducted the analysis of these samples.

preserved with sodium hydroxide to a pH $\geq$ 12. After collection, samples were immediately placed in a sample cooler and maintained at 4°C. A trip blank for VOC analysis was sent with the aqueous samples. Sample custody and chain-of-custody were maintained throughout the field and laboratory effort.

3.3 SOIL SAMPLING

A total of 29 soil samples were obtained from 15 locations in and around the Hanley Area. Exhibit 3-2 (Pocket B) provides a map showing soil sampling locations. Sampling locations were selected based on known prior activities in the Hanley Area that may have contributed to on-site contamination; specifically, samples were collected at or near building openings where spills and sweepings from floors would have accumulated.

Considerable disturbance of the surface soils in the area has occurred due to brush clearance and reseeding work performed in 1989 and 1990. Therefore, soil samples were generally collected at each location from two depth intervals (0-1 ft and 1-2 ft). During the course of the sampling, an inoperable and leaking vintage electrical transformer was found in the area and a soil sample for PCB analysis was obtained from the soil surface beneath the leak. Of the other 28 soil samples, all were analyzed for selected metals and explosives. In addition, nine of the samples were analyzed for TAL/TCL constituents, and of those nine, four samples were also analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) method. The more complete analyses were conducted on samples collected from the lower sampling depth.

A total of six soil samples were collected from three different background locations upgradient from the buildings in the Hanley Area, although within the original boundaries of SLOP. At each location, two samples were collected- one from a depth of zero to one foot and the second from a depth of one to two feet.

Soil samples collected for VOC analysis were collected by first making a boring to the appropriate depth using a shovel or bucket auger. A stainless steel scoopula was used to collect the sample, immediately placing it in a 120 mL amber glass bottle with a Teflon-lined cap. Care was taken to minimize the headspace within the sample bottle. The sample bottle threads were quickly wiped with a clean paper towel and the cap immediately tightened. Immediately after collection, samples were placed in the sample cooler and maintained at 4 °C. Chain-of-custody forms were completed and enclosed in the sample coolers.

Soil samples not intended for volatile organic analysis were collected by making a boring to the appropriate interval using a clean shovel or bucket auger and placing the excavated soil in a stainless steel pan. The sample was homogenized using a clean stainless steel trowel, then bottles were filled using a stainless steel scoopula. One sample for semivolatile constituents, metals, and explosives analysis was collected in a 500 mL amber glass sample bottle with Teflon lined caps. Traces of soil remaining on the sample bottle and threads were removed using a clean paper towel, the cap was immediately tightened, and the sample placed in a cooler at 4 °C.

Sampling equipment used to obtain soil samples was cleaned by scrubbing and rinsing with approved deionized water, then protected by wrapping with aluminum foil prior to use at the next sampling location. Two equipment rinsate blanks were collected following decontamination procedures to evaluate the effectiveness of these efforts to minimize sample cross-contamination.

All measurements and locational information regarding sampling activities were recorded in a permanently-bound logbook with numbered pages. Information recorded included: sample number; depth of sample; visual observations of sample including color, water content, and composition; date and

4.0 REGULATORY CRITERIA

This section provides an overview of regulatory criteria potentially applicable to an assessment of results from the SLOP investigation. Available criteria and guidance from the USEPA (EPA), the Missouri Department of Natural Resources (MDNR) and local regulations applicable to task objectives, site conditions and contaminants found at SLOP were evaluated.

4.1 ASBESTOS

Based upon the determination that asbestos emissions pose a serious risk to human health, EPA established regulations to reduce such risk. The State of Missouri adopted the National Emission Standards for Hazardous Air Pollutants (NESHAP) in regulating asbestos emissions. NESHAP defines asbestos containing material (ACM) as any material containing more than 1% by weight of any of the five mineral forms of asbestos. The definition describes friable ACM further as any ACM "that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure" (40 CFR 61.141). A November 20, 1990 federal ruling more specifically categorizes ACM and provides methods for asbestos analysis. The State of Missouri has not yet adopted this new ruling.

Demolition or renovation activities must follow NESHAP regulations in addition to State amendments. These requirements include removal or adequate wetting of all friable ACM or ACM which would become friable upon exposure during demolition (40 CFR 61.147(a)). In addition to notifying the Federal Administrator at least 10 days before abatement, facility owners within the St. Louis City limits must also notify city and state authorities at least 20 days prior to abatement activities and submit a $100 filing fee. 40 CFR 61.145(b) provides specific information required for submission to federal authorities. (Removals involving less that 10 square feet or 16 linear feet of ACM do not require such notification.) Missouri requires that a state certified contractor perform any asbestos abatement. Further specifications concerning the procedures for asbestos emission control are given in 40 CFR 61.145(c).

The provisions of the Occupational Safety and Health Act (OSHA) provide protection to workers involved in the demolition or renovation of buildings containing ACM. OSHA regulations also address protection of Army personnel that may occupy buildings at SLOP containing ACM. OSHA mandates that an employer must ensure that certain exposure limits are not exceeded. This may require surveillance if the air reaches action levels of ACM. EPA and OSHA are currently working on new regulations to control asbestos in public and commercial buildings. At the time of this writing, no promulgation date had been issued.

4.2 WATER

Several federal regulations provide standards for water quality, none of which appear to be directly applicable to the situation at SLOP. Neither the Maximum Contaminant Levels (MCLs) available under the Safe Drinking Water Act (applicable to drinking water) nor the Ambient Water Quality Criteria contained in the Clean Water Act (applicable to potentially habitable ecosystems) relate directly to the standing water contained in the tunnels, and discharge limits have not been established through any permitting action. Therefore, the most applicable regulatory guidance appears to be standards developed for waters entering local sewer systems and/or directly discharged to the Mississippi River.

The Metropolitan St. Louis Sewer District (MLSD) effluent permit standards were used as a point of comparison for the tunnel water analytical results, not as a criteria for judging tunnel water quality. The effluent standards for selected metals are provided in Exhibit 4-1.

EXHIBIT 4-1

METROPOLITAN ST. LOUIS SEWER DISTRICT DISCHARGE CONCENTRATIONS FOR SELECTED METALS

METAL ANALYTE	METROPOLITAN ST. LOUIS SEWER DISTRICT DISCHARGE LIMIT[1] (ppb-µg/L)
Lead, total	200
Aluminum, total	no limit exists
Barium, total	10,000
Chromium, total	5,000
Manganese, total	no limit exists
Sodium	no limit exists
Zinc, total	3,000
Copper, total	1,500
Iron	15,000
Magnesium	no limit exists
Calcium	no limit exists

[1]Metropolitan St. Louis Sewer District, Ordinance No. 4786.

4.3 SOIL

Standards have not been developed, either by EPA or MDNR, concerning the permissible concentration of contaminants in soil. Many of the metals found at SLOP, including lead, chromium, cadmium, and nickel, are classified as US EPA hazardous wastes and priority pollutants.

The MDNR evaluates clean-up action levels on a site-by-site basis. Cleanup action levels are established based on factors such as site-specific characteristics, potential for contaminant migration, and the potential of health impacts to the surrounding population (most strictly applicable to groundwater use).

The MDNR has not provided any guidance on action levels for pollutant concentrations found in SLOP soils, and soils data will need to be submitted to MDNR in order to obtain a regulatory assessment. Individuals at the Missouri Department of Health, the MDNR Waste Management Division, and at the MDNR Lab Services Division were contacted in an attempt to gather information on state agency policy on cleanup action levels and to ascertain actions that have previously been taken at other sites in Missouri contaminated with metals and organics. In addition, all Records of Decision (RODs) for previous Superfund activities in Missouri were reviewed to determine if cleanup levels were established for metals.

Guidance on potentially applicable cleanup levels also is available from a recently-published proposed EPA rule (as 40 CFR Parts 264, 265, 270, and 271) for concentrations meeting criteria for action levels in environmental media [Federal Register, July 27, 1990, p. 30798ff]. Proposed levels in soil for selected contaminants relevant to SLOP are shown in Exhibit 4-2. It is noted that the rule and levels given are strictly applicable only to RCRA Solid Waste Management Units and have not yet been adopted. However, the proposed concentrations have been used to evaluate the seriousness with which EPA may view contamination levels found in the soil at SLOP. It is also noted that no criterion for lead in soil has been provided.

One of the soil samples collected in the Hanley Area was obtained from beneath a leaking transformer. The regulations addressing polychlorinated biphenyls (PCBs) manufacturing, processing, distribution in commerce, and use prohibitions (40 CFR 761) define a "spill requiring cleanup action" as the intentional or unintentional spill, leak, or other uncontrolled discharge where release results in any quantity of PCBs running off or potentially running off equipment, or any resulting contamination. A spill requires cleanup if the PCB concentration is 50 ppm or higher (40 CFR 761.123(2)).

EXHIBIT 4-2

PROPOSED CONCENTRATIONS MEETING CRITERIA FOR ACTION LEVELS

CONSTITUENT	PROPOSED ACTION LEVEL CONCENTRATION (mg/kg)
Dinitrotoluene (Mixed)	1
PETN	(None Given)
Mercury	20
Lead	(None Given)
Cadmium	40
Chromium (VI)	400
Arsenic	30
Barium	4000
Beryllium	0.2
Antimony	30
Zinc	(None Given)
PAHs	(None Given)

[1] Source: 55 FR 30798 (July 27, 1990).

5.0 QUALITY ASSURANCE/QUALITY CONTROL

5.1 INTRODUCTION

A quality assurance program was implemented for SLOP to verify the integrity and reliability of activities associated with the generation of defensible environmental data. The quality assurance program encompassed thorough planning, explicit specification of data quality objectives, continual application of quality control measures to preclude out-of-control situations, and the establishment of monitoring systems to ensure the expeditious identification, evaluation, and correction of system deficiencies.

The quality assurance program for SLOP was implemented and maintained through use of well defined quality control protocols developed in conjunction with specifications contained in the USATHAMA guidance documents, *Installation Restoration Quality Assurance Program*, December 1985, 2nd Edition, March 1987 and the *Geotechnical Requirements for Drilling, Monitor Well, Data Acquisition, and Reports*. Other quality control criteria were based on ICF KE Standard Operating Procedures (SOPs).

The SLOP quality assurance program was maintained through adherence to SOPs, periodic monitoring of sampling and analysis systems, and frequent evaluation of data management activities. The following sections identify the quality assurance program established and maintained during the performance of the SLOP work assignment. Specific areas this section addresses include: data quality objectives in terms of accuracy, precision, completeness, comparability, and representativeness; field sampling and measurement protocols; field audits; analytical services; and blank contamination assessment.

5.1.1 Quality Control Criteria

The quality control criteria used to ensure the integrity of data generated in support of project activities included:

- **Project Planning and Site Characterization:** A site visit was conducted prior to development of the project work plan. The visit occurred in the Hanley Area of SLOP on April 11 and 12, 1989, to discern existing site conditions and to augment the available information on the installation. A site map was prepared as a result of the visit, which more accurately depicted the boundaries of the study area. Historical information was reviewed and evaluated to assist in the development of a sound site assessment program.

- **Project Work Plan:** The sampling design program for SLOP activities was developed using a phased approach. Phase I entailed an investigation of the surface soils in the study area to determine the nature and extent of surface soil contamination. During this phase, an asbestos-location survey was conducted in all building spaces and inside the tunnel system beneath the Hanley area. The sampling and analysis of free-standing liquids was also conducted for Phase I activities.

  Phase II activities, which were planned to consist of subsurface soil and hydrogeologic investigations to discern the vertical and lateral extent of contamination, were not conducted under this Delivery Order.

- **Data Quality Objectives:** Data quality objectives were developed concurrently with the work plan to ensure that: (1) field sampling, chemical analyses, and physical analysis would be reliable; (2) sufficient data would be collected; (3) the quality of data generated would be acceptable for its intended uses; and (4) valid assumptions could be inferred from the data.

- **Standard Operating Procedures:** Sampling activities were performed in compliance with criteria defined in the USATHAMA guidance documents for sampling events, as specified in SOPs. Chemical analyses were performed using USATHAMA-certified methodologies.

- **Sampling Personnel:** Field team members possessed the appropriate qualifications and training for the collection of representative samples. Each individual was experienced in the requisite protocols for collection of environmental samples and the performance of geology-related tasks. In addition, each team member was familiar with the SLOP work plan and the QA/QC information pertinent to field activities.

- **Documentation:** Field documentation was provided to the laboratory on forms developed specifically for USATHAMA investigations. The forms contained the requisite information for encoding chemical data into the Installation Restoration Data Management System. All entries into field logbooks were evaluated for completeness and accuracy.

- **Chain-of-Custody:** All samples were collected and relinquished under stringent chain-of-custody protocols as specified in the project quality control plan.

- **Document Control:** All documents generated in support of project activities were controlled by a document control system. A unique control number was assigned to each document prior to its being archived into the system. Access in the document control system was restricted to designated personnel.

- **Monitoring:** Audits were conducted to verify the integrity of work performed in support of this project, and to provide formal documentation attesting to the reliability of the audited system. Field audits were conducted at SLOP on June 27, 1989, when the first field sampling event occurred, and on September 25, 1990, during the followup field sampling event.

- **Analytical Services:** Chemical analyses were performed using USATHAMA-certified methodologies, as appropriate. The laboratory was responsible for ensuring the quality of data acquired during chemical analysis, and USATHAMA provided the data validation through the acceptance of quality control charts generated during chemical analysis. Optimal analytical performance by the laboratory was ensured through frequent evaluations of performance and system audits, preventive maintenance, and corrective action.

5.2 FIELD MEASUREMENT AND SAMPLING ASSESSMENT

The integrity of field sampling and measurement systems have been assessed through the data quality indicators, i.e., accuracy, precision, completeness, and representativeness. In addition, the results of field audits conducted at the site infer the level of accuracy, precision, completeness, and representativeness associated with sampling activities.

- **Accuracy:** Defined as the bias in a measurement system, sampling accuracy has been assessed through the evaluation of trip and rinse blank data. This information indicates whether contamination was introduced during the sampling event. A more detailed discussion is presented in the blank contamination assessment section.

The accuracy of field measurements for pH and conductivity for water quality criteria was inferred from the calibration logs generated before, during, and after analyses. The sampling crew adhered to the requisite protocols for the calibration of field equipment. Evidentiary documentation of this fact is contained on the requisite field parameter form.

- **Precision:** Precision is a quantitative measure of the variability of a group of measurements in comparison to the average value. The precision of field sampling activities was inferred from the consistency of the sampling technique as evidenced in the field audit. The precision associated with field measurement readings was inferred from the duplicate measurements taken at the completion of sampling. All criteria were compliant with existing protocols.

- **Completeness:** Sampling completeness is generally assessed by comparing the total number of samples proposed and obtained. Following the determination by USATHAMA that the analytical data from the original sampling was invalid, the scope of the work assignment was redefined to include 16 soil samples and 2 surface water samples. These sample numbers were used to evaluate completeness of the sampling activities. The number of samples obtained exceeds these criteria.

- **Representativeness:** This criteria expresses the degree of accuracy and precision to which sample data represents the population. The sampling design criteria for the SLOP work assignment consisted of biased sampling locations based on previous site investigations. Samples were collected in compliance with USATHAMA sampling protocols.

5.2.1 Field Audits

A field audit was conducted at SLOP on June 27, 1989. The audit encompassed several areas including: (1) briefing with Project Coordinator; (2) field observations and standard operating procedures; (3) document control; and (4) debriefing with Project Coordinator. No deficiencies were encountered for the standard operating procedures used for the collection of environmental samples. The only deficiency noted during the audit was in the documentation required for the field parameter forms. It was noted that the entries for file name, site identification, and site type were in error. Corrective action was effected by generating an internal memorandum that described the appropriate entries for the respective fields.

A second field audit was conducted at SLOP on September 25, 1990. The areas observed during the audit included: (1) sample documentation and management; (2) field calibration (3) surface water and soil sampling; and (4) additional observations and comments.

A copy of the project work plan was available on site at all times during the sampling activities in the site vehicle. The requisite information was recorded in the logbook to provide evidentiary information that representative samples had been collected.

Surface water samples were collected directly into the requisite sample container. Soil samples were collected using a trenching shovel that had been decontaminated and wrapped in aluminum foil prior to use. An HNu was used to screen the organic composition of the down hole and the environmental samples. The samples were then classified and the requisite information was transcribed into the field logbook, including a sketch of the sampling location.

A stainless steel bowl and trowel were used to homogenize soil samples. Samples requiring volatile organic analysis were not homogenized, but were transferred directly to the sample container. The bowl and trowel were decontaminated between locations with deionized water obtained from Fisher Scientific, which had been approved by USATHAMA for project use. The samples were placed in the requisite sample containers following homogenization. The down hole generated during sample collection was backfilled with the remaining soil that had been extracted from the hole.

Field calibration was performed on the HNu and the combination pH, temperature, and conductivity meter. All calibrations were performed in accordance with the standard operating procedures for the instrumentation. The temperature sensor of the combination meter was not functioning during the investigation. Conductivity and pH measurements were recorded for samples collected during the surface water investigation.

The sampling team was cognizant of the conventions and protocols associated with surface water and soil sampling. There were no deficiencies associated with this sampling activity.

5.3 ANALYTICAL SERVICES AND DATA QUALITY

Initially, metaTRACE Inc. was responsible for analytical services through a contract laboratory analytical support services (CLASS) contract with USATHAMA. In August 1990, USATHAMA determined that the quality of data acquired from metaTRACE was not adequate to support a site assessment. ESE Laboratories in Gainesville, FL, was then subcontracted directly by ICF KE to provide analytical services for the SLOP task assignment. All analytical methodologies used were USATHAMA-certified and the method quality control and data validation for these analyses were performed by USATHAMA.

5.3.1 Parameters

The constituents requested for analysis included: EPA Target Analyte List (TAL) inorganic constituents; EPA Target Compound List (TCL) volatile and semivolatile constituents; explosives, and Toxicity Characteristic Leaching Procedure constituents (soil samples only). All samples submitted to the laboratory have been identified according to laboratory-designated lot numbers, method numbers, parameters, sampling dates, analytical preparation date (if applicable), and analysis date, as shown in Exhibit 5-1. Analytes, USATHAMA acronyms, certified reporting limits (method quantitation limit), and upper reporting limits for constituents analyzed in support of this project are shown in Exhibit 5-2 (inorganic compounds); Exhibit 5-3 (volatile organic compounds); Exhibit 5-4 and Exhibit 5-5 (semivolatile organic compounds); and Exhibit 5-6 (explosive constituents).

EPA TAL inorganic constituents were analyzed for 23 metals and cyanide in accordance with USATHAMA Class 1 protocols. All water samples were preserved with nitric acid to a pH less than 2.0 following sample collection. The metal constituents were analyzed using one of the following methodologies: inductively coupled argon emission plasma spectroscopy (ICAP), graphite furnace atomic absorption spectroscopy (GFAA), or cold vapor atomic absorption (CVAA). The corresponding USATHAMA method numbers for each designated analysis is given in Exhibit 5-7.

EPA TCL volatile and semivolatile constituents were analyzed in accordance with USATHAMA Class 1A protocols for gas chromatography/mass spectroscopy analysis. USATHAMA methods LM19 was used for the analysis of soil samples and UM 20 was used for the analysis of water samples. The method for the analysis of volatile organic compounds in soil samples involved purging five grams of soil sample and five milliliters of volatile organic free water containing surrogates and internal standards with helium gas. The purging chamber was heated to a predefined temperature and the vapor was transferred to a sorbent tube which effectively trapped the volatile organic compounds. The constituents were then backflushed onto a gas chromatographic column that was temperature programmed to separate the organic constituents. The volatile compounds were then detected using a mass spectrometer. The procedure for the analysis of water samples was analogous to the soil protocol with the exception of the sample used.

EXHIBIT 5-1

SLOP LOT DESIGNATIONS

LOT	METHOD	SAMPLE	SAMPLING DATE	PREP DATE	ANALYSIS DATE
LZF	99	SW09	9/26/90	9/28/90	9/28/90
	EXPLOSIVES	SW10	9/25/90		
	TETRAZINE IN WATER	SORB-1	9/24/90		
		SORB-2	9/25/90		
LZG	99	SS40A	9/24/90	9/28/90	10/1/90
	EXPLOSIVES	SS40B	9/24/90		
	TETRAZINE IN SOIL	SS41A	9/24/90		
		SS42A	9/24/90		
		SS43A	9/24/90		
		SS43B	9/24/90		
		SS44A	9/24/90		
		SS44B	9/24/90		
		SS45A	9/24/90		
		SS45B	9/24/90		
		SS46A	9/24/90		
		SS46B	6,24/90		
		SS47A	9/24/90		
		SS47B	9/24/90		
LZH	99	SS48A	9/25/90	9/28/90	10/1/90
	EXPLOSIVES	SS48B	9/25/90		
	TETRAZINE IN SOIL	SS49A	9/25/90		
		SS49B	9/25/90		
		SS50A	9/25/90		
		SS50B	9/25/90		
		SS51A	9/25/90		
		SS51B	9/25/90		
		SS52A	9/25/90		
		SS52B	9/25/90		
		SS53A	9/25/90		
		SS53B	9/25/90		
		SS54A	9/25/90		
		SS54B	9/25/90		
OGL	UW19	SW09	9/26/90	10/1/90	10/18/90
	EXPLOSIVES	SW10	9/25/90		
	PETN IN WATER	SORB-1	9/24/90		
		SORB-2	9/25/90		
OPJ	UF03	SW09	9/26/90	10/1/90	10/10/90
	EXPLOSIVES	SW10	9/25/90		
	NITROCELLULOSE IN WATER	SORB-1	9/24/90		
		SORB-2	9/25/90		
OQP	LF03	SS40A	9/24/90	10/8/90	10/10/90
	EXPLOSIVES	SS40B	9/24/90		
	NITROCELLULOSE IN SOIL	SS41A	9/24/90		
		SS42A	9/24/90		
		SS43A	9/24/90		
		SS43B	9/24/90		
		SS44B	9/24/90		
		SS45A	9/24/90		
		SS45B	9/24/90		
		SS46A	9/24/90		
		SS46B	9/24/90		
		SS47A	9/24/90		
		SS47B	9/24/90		
		SS48A	9/25/90		
		SS48B	9/25/90		
		SS49A	9/25/90		
		SS49B	9/25/90		
		SS50A	9/25/90		
		SS50B	9/25/90		
		SS51A	9/25/90		
		SS51B	9/25/90		
		SS52A	9/25/90		
		SS52B	9/25/90		
		SS53A	9/25/90		
		SS53B	9/25/90		
		SS54A	9/25/90		
		SS54B	9/25/90		
OQQ	99	SS44A	9/24/90	11/21/90	11/30/90
	EXPLOSIVES				
	NITROCELLULOSE IN SOIL				
PJX	SD23	SO09	9/26/90	10/29/90	11/7/90
	TAL/TCL	SW10	9/25/90		
	SILVER IN WATER	SORB-1	9/24/90		
		SORB-2	9/25/90		

EXHIBIT 5-1

SLOP LOT DESIGNATIONS (continued)

LOT	METHOD	SAMPLE	SAMPLING DATE	PREP DATE	ANALYSIS DATE
PQE	UH14 TCLP HERBICIDES IN WATER	SS41A SS44B SS47B SS51B	10/8/90 10/8/90 10/8/90 10/8/90	10/10/90	11/7/90
RTX	TF18 TAL/TCL CYANIDE IN WATER	SW09 SW10 SORB-1 SORB-2	9/26/90 9/25/90 9/24/90 9/25/90	10/2/90	10/3/90
SNT	SB01 TAL/TCL MERCURY IN WATER	SW09 SW10 SORB-1 SORB-2	9/26/90 9/25/90 9/24/90 9/25/90	10/15/90	10/16/90
SNX	SB01 TCLP MERCURY IN WATER	SS41A SS44B SS47B SS51B	10/8/90 10/8/90 10/8/90 10/8/90	11/2/90	11/2/90
SVW	JD15 TAL/TCL SELENIUM IN SOIL	SS41A SS44B SS46B SS47B SS48B SS51B SS52B SS53B SS54B	9/24/90 9/24/90 9/24/90 9/24/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90	10/30/90	11/07/90
TBO	KY01 TAL/TCL CYANIDE IN SOIL	SS41A SS44B SS46B SS47B SS48B SS51B SS52B SS53B SS54B	9/24/90 9/24/90 9/24/90 9/24/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90	10/3/90	10/3/90
TCP	SD22 TAL/TCL ARSENIC IN WATER	SW09 SW10 SORB-1 SORB-2	9/26/90 9/25/90 9/24/90 9/25/90	10/29/90	11/6/90
TCT	SD22 TCLP ARSENIC IN WATER	SS41A SS44B SS47B SS51B	10/8/90 10/8/90 10/8/90 10/8/90	11/20/90	11/21/90
TFN	SD21 TAL/TCL SELENIUM IN WATER	SW09 SW10 SORB-1 SORB-2	9/26/90 9/25/90 9/24/90 9/25/90	10/29/90	11/6/90
TFR	SD21 TCLP SELENIUM IN WATER	SS41A SS44B SS47B SS51B	10/8/90 10/8/90 10/8/90 10/8/90	11/20/90	11/21/90
TGQ	SS10 TAL/TCL METALS IN WATER	SW09 SW10 SORB-1 SORB-2	9/24/90 9/25/90 9/25/90 9/26/90	11/1/90	11/5/90
TGT	SS10 TCLP METALS IN WATER	SS41A SS44B SS47B SS51B	10/8/90 10/8/90 10/8/90 10/8/90	11/9/90	11/18/90
THN	UW14 EXPLOSIVES IN WATER	SW09 SW10 SORB-1 SORB-2	9/26/90 9/25/90 9/24/90 9/25/90	10/1/90	10/3/90
TLE	SD09 TAL/TCL THALLIUM IN WATER	SW09 SW10 SORB-1 SORB-2	9/26/90 9/25/90 9/24/90 9/25/90	10/29/90	11/06/90

EXHIBIT 5-1

SLOP LOT DESIGNATIONS (continued)

LOT	METHOD	SAMPLE	SAMPLING DATE	PREP DATE	ANALYSIS DATE
TMR	JB01	SS40A	9/24/90	10/22/90	10/22/90
	TAL/TCL	SS40B	9/24/90		
	MERCURY IN SOIL	SS41A	9/24/90		
		SS42A	9/24/90		
		SS43A	9/24/90		
		SS43B	9/24/90		
		SS44A	9/24/90		
		SS44B	9/24/90		
		SS45A	9/24/90		
		SS45B	9/24/90		
		SS46A	9/24/90		
		SS46B	9/24/90		
		SS47A	9/24/90		
		SS47B	9/24/90		
		SS48A	9/25/90		
		SS48B	9/25/90		
		SS49A	9/25/90		
		SS49B	9/25/90		
		SS50A	9/25/90		
		SS50B	9/25/90		
		SS51A	9/25/90		
		SS51B	9/25/90		
		SS52A	9/25/90		
		SS52B	9/25/90		
		SS53A	9/25/90		
		SS53B	9/25/90		
		SS54A	9/25/90		
		SS54B	9/25/90		
TNO	LM18	SS41A	9/24/90	9/30/90	10/9/90
	TAL/TCL	SS44B	9/24/90		
	BNAS IN SOIL	SS46B	9/24/90		
		SS47B	9/24/90		
		SS48B	9/25/90		
		SS51B	9/25/90		
		SS52B	9/25/90		
		SS53B	9/25/90		
TOE	LH16	SS55A	9/25/90	9/27/90	10/21/90
	PCBS IN SOIL				
TOX	LM19	SS41A	9/24/90	10/4/90	10/5/90
	TAL/TCL	SS44B	9/24/90		
	VOAS IN SOIL	SS46B	9/24/90		
		SS47B	9/24/90		
		SS48B	9/25/90		
TOZ	LM19	SS51B	9/25/90	10/8/90	10/8/90
	TAL/TCL	SS52B	9/25/90		
	VOAS IN SOIL	SS53B	9/25/90		
		SS54B	9/25/90		
TSK	UM20	SW09	9/26/90	10/2/90	10/2/90
	TAL/TCL	SW10	9/25/90		
	VOAS IN WATER	SOTB-1	9/24/90		
		SOTB-2	9/25/90		
		SOTB-3	9/26/90		
		SORB-1	9/24/90		
		SORB-2	9/25/90		
TSW	UM20	SS41A	10/8/90	10/18/90	10/18/90
	TCLP	SS44B	10/8/90		
	VOAS IN WATER	SS47B	10/8/90		
		SS51B	10/8/90		
TUE	SD20	SW09	9/26/90	10/29/90	11/9/90
	TAL/TCL	SW10	9/25/90		
	LEAD IN WATER	SORB-1	9/24/90		
		SORB-2	9/25/90		
TVC	UM18	SW09	9/26/90	9/28/90	10/5/90
	TAL/TCL	SW10	9/25/90		
	BNAS IN WATER	SORB-1	9/24/90		
		SORB-2	9/25/90		
TVJ	UM18	SS41A	10/8/90	10/10/90	10/22/90
	TCLP	SS44B	10/8/90		
	BNAS IN WATER	SS47B	10/8/90		
		SS51B	10/8/90		

EXHIBIT 5-1

SLOP LOT DESIGNATIONS (continued)

LOT	METHOD	SAMPLE	SAMPLING DATE	PREP DATE	ANALYSIS DATE
TWG	JD19 TAL/TCL ARSENIC IN SOIL	SS41A SS44B SS46B SS47B SS48B SS51B SS52B SS53B SS54B	9/24/90 9/24/90 9/24/90 9/24/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90	10/30/90	11/7/90
TXA	LW12 EXPLOSIVES IN SOIL	SS40A SS40B SS41A SS42A SS43A SS43B SS44A	9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90	9/29/90	10/9/90
TXB	LW12 EXPLOSIVES IN SOIL	SS44B SS45A SS45B SS46A SS46B SS47A SS47B SS48A SS48B SS49A SS49B SS50A SS50B SS51A SS51B SS52A SS52B SS53A SS53B SS54A SS54B	9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90	9/29/90	10/9/90
UAB	JS11 TAL/TCL METALS IN SOIL	SS40A SS40B SS41A SS42A SS43A SS43B SS44A SS44B SS45A SS45B SS46A SS46B SS47A SS47B SS48A SS48B SS49A SS49B SS50A SS50B SS51A SS51B SS52A SS52B SS53A SS53B SS54A SS54B	9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/24/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90 9/25/90	10/30/90	10/31/90

EXHIBIT 5-2

ESE INORGANIC REPORTING LIMITS FOR USATHAMA CERTIFIED ANALYSES

ANALYTE	USATHAMA Acronym	Soil (μg/g)		Water (μg/L)	
		Certified Reporting Limits	Upper Reporting Limits	Certified Reporting Limits	Upper Reporting Limits
Aluminum	AL	14.1[b]	5,000	141	45,000
Antimony	SB	3.80[b]	5,000	38.0	6,000
Arsenic[a]	AS	0.25	10.0	2.54	100
Barium	BA	29.6	200	5.00	10,000
Beryllium	BE	1.80	20	5.00	1,000
Calcium	CA	59.0	5,000	500	20,000
Cadmium	CD	3.05	20	4.01	5,000
Chromium	CR	12.7	5,000	6.02	5,000
Cobalt	CO	15.0	5,000	25.0	50,000
Copper	CU	58.6	5,000	8.09	10,000
Cyanide[c]	CN	0.92	10.0	3.81	60.0
Iron	FE	50.0[b]	5,000	500	50,000
Lead[a]	PB	0.177	10.0	18.6	5,000
Magnesium	MG	50.0[b]	5,000	500	20,000
Manganese	MN	0.275[b]	5,000	2.75	2,000
Mercury[d]	HG	0.05	0.93	0.24	10.0
Nickel	NI	12.6	5,000	34.3	15,000
Potassium	K	37.5[b]	5,000	375	12,500
Selenium[a]	SE	0.25	10.0	3.02	100
Silver	AG	2.50	50	4.6	2,500
Sodium	NA	150	5,000	500	50,000
Thallium	TL	31.3[a]	5,000[a]	81.4	40,000
Vanadium	V	13.0	5,000	11.0	1,000
Zinc	ZN	30.2	5,000	21.1	20,000

LEGEND:

a Analyzed using graphite furnace atomic absorption spectroscopy.
b Background levels in USATHAMA standard soil was too large to obtain realistic CRL values. Results were calculated from water certification.
c Analyzed using spectrophotometric detection.
d Analyzed using cold vapor atomic absorption spectroscopy.

EXHIBIT 5-3

ESE VOLATILE ORGANIC REPORTING LIMITS FOR USATHAMA CERTIFIED ANALYSIS

ANALYTE	USATHAMA ACRONYM	SOIL (ug/kg) CERTIFIED REPORTING LIMIT	SOIL (ug/kg) UPPER REPORTING LIMIT	WATER (µg/L) CERTIFIED REPORTING LIMIT	WATER (µg/L) UPPER REPORTING LIMIT
Acetone	ACET	17.0	100	13.0	50
Benzene	C6H6	1.50	200	0.50	200
Bromodichloromethane	BRDCLM	2.90	200	0.59	200
Bromoform	CHBR3	6.90	200	2.60	200
Bromomethane	CH3BR	5.70	200	5.80	100
2-Butanone	MEK	70.0	200	6.40	200
Carbon disulfide	CS2	4.40	100	0.50	200
Carbon tetrachloride	CCL4	7.00	200	0.58	200
Chlorobenzene	CLC6H5	0.86	200	0.50	200
Chloroethane	C2H5CL	12.0	200	1.90	200
Chloroform	CHCL3	0.87	200	0.50	200
Chloromethane	CH3CL	8.80	100	3.20	200
Dibromochloromethane	DBRCLM	3.10	200	0.67	100
1,1-Dichlororethane	11DCLE	2.30	200	0.68	200
1,2-Dichloroethane	12DCLE	1.70	200	0.50	50
1,1-Dichloroethylene	11DCE	3.90	100	0.50	200
1,2-Dichloroethylene (total)	12DCE	3.00	100	0.50	200
1,2-Dichloropropane	12DCLP	3.00	200	0.50	200
trans-1,3-Dichloropropene	T13DCP	2.80	152	0.70	280
cis-1,3-Dichloropropylene	C13DCP	3.20	248	0.58	230
Ethylbenzene	ETC6H5	1.70	200	0.50	200
4-Methyl 2-pentanone	MIBK	27.0	100	3.00	200
Methylene chloride	CH2CL2	12.0	200	2.30	100
Styrene	STYR	2.60	200	0.50	200
1,1,2,2-Tetrachloroethane	TCLEA	2.40	200	0.51	200
Tetrachloroethylene	TCLEE	0.81	200	1.60	200
1,1,1-Trichloroethane	111TCE	4.40	200	0.50	200
1,1,2-Trichloroethane	112TCE	5.40	200	1.20	200
Trichloroethylene	TRCLE	2.80	200	0.50	200
Toluene	MEC6H5	0.78	200	0.50	200
Vinyl acetate	CH2AVE	32.0	100	8.30	50
Vinyl chloride	C2H3CL	6.20	200	2.60	200
Xylenes (total)	XYLEN	1.50	200	0.84	200

EXHIBIT 5-4

ESE SEMIVOLATILE ORGANIC REPORTING LIMITS FOR USATHAMA CERTIFIED ANALYSIS

Analyte	USATHAMA Acronym	SOIL (µg/g)		WATER (µg/L)	
		Certified Reporting Limits	Upper Reporting Limits	Certified Reporting Limits	Upper Reporting Limits
Acenaphthene	ANAPNE	0.036	13.0	1.70	50.0
2,4-Dinitrophenol	24DNP	1.30	6.70	21.0	100
4-Nitrophenol	4NP	1.40	13.0	12.0	100
Dibenzofuran	DBZFUR	0.035	6.70	1.70	50.0
2,4-Dinitrotoluene	24DNT	0.14	13.0	4.50	200
Diethylphthalate	DEP	0.24	6.70	2.00	200
4-Chlorophenyl-phenylether	4CLPPE	0.033	13.0	5.10	100
Fluorene	FLRENE	0.033	13.0	3.70	50.0
4-Nitroaniline	4NANIL	0.41	13.0	5.20	100
4,6-Dinitro-2-methylphenol	46DN2C	0.55	13.0	17.0	100
N-Nitrosodiphenylamine	NNDPA	0.19	13.0	3.0	200
4-Bromophenyl-phenyl ether	4BRPPE	2.70	6.70	4.20	100
Hexachlorobenzene	CL6BZ	0.033	6.70	1.60	100
Pentachlorophenol	PCP	1.30	6.70	18.0	100
Phenanthrene	PHANTR	0.033	13.0	0.50	100
Anthracene	ANTRC	0.033	13.0	0.50	100
Di-n-butylphthalate	DNBP	0.061	3.30	3.70	200
Fluoranthene	FANT	0.068	13.0	3.30	100
Pyrene	PYR	0.033	3.30	2.80	100
Butylbenzylphthalate	BBZP	0.17	6.70	3.40	100
3,3'-Dichlorobenzidine	33DCBD	6.30	13.0	12.0	100
Benzo[a]anthracene	BAANTR	0.17	13.0	1.60	100
Chrysene	CHRY	0.12	6.70	2.40	100
Bis(2-ethylhexyl)phthalate	B2EHP	0.62	13.0	4.80	100
Di-n-octylphthalate	DNOP	0.19	6.70	15.0	100
Benzo[b]fluoranthene	BBFANT	0.21	3.30	5.40	50.0
Benzo[k]fluoranthene	BKFANT	0.066	0.67	0.87	100
Benzo[a]pyrene	BAPYR	0.25	13.0	4.70	100
Indeno(1,2,3-cd)pyrene	ICDPYR	0.29	13.0	8.60	100
Dibenzo[a,h]anthracene	DBAHA	0.21	13.0	6.50	50.0
Benzo[g,h,i]perylene	BGHIPY	0.25	3.30	6.10	50.0
Phenol	PHENOL	0.11	3.30	9.20	200
Bis(2-chloroethyl)ether	B2CLEE	0.033	6.70	1.90	50.0
2-Chlorophenol	2CLP	0.060	13.0	0.99	200
1,3-Dichlorobenzene	13DCLB	0.13	13.0	1.70	200
1,4-Dichlorobenzene	14DCLB	0.098	13.0	1.70	200
Benzyl alcohol	BZALC	0.19	13.0	0.72	100

EXHIBIT 5-4

ESE SEMIVOLATILE ORGANIC REPORTING LIMITS FOR USATHAMA CERTIFIED ANALYSIS (continued)

Analyte	USATHAMA Acronym	SOIL (µg/g)		WATER (µg/L)	
		Certified Reporting Limits	Upper Reporting Limits	Certified Reporting Limits	Upper Reporting Limits
1,2-Dichlorobenzene	12DCLB	0.11	13.0	1.70	50.0
2-Methylphenol	2MP	0.29	1.30	3.9	200
Bis(2-chloroisopropyl)ether	B2CIPE	0.20	13.0	5.30	200
4-Methylphenol	4MP	0.23	1.30	0.52	200
N-Nitroso-di-n-propylamine	NNDNPA	0.20	13.0	4.40	50.0
Hexachloroethane	CL6ET	0.15	13.0	1.50	50.0
Nitrobenzene	NB	0.045	13.0	0.50	50.0
Isophorone	ISOPHR	0.033	13.0	4.80	50.0
2-Nitrophenol	2NP	0.14	13.0	3.70	100
2,4-Dimethylphenol	24DMPN	0.69	1.30	5.60	100
Benzoic acid	BENZOA	-	-	13.0	100
Bis(2-chloroethoxy)methane	B2CEXM	0.059	13.0	1.50	50.0
2,4-Dichlorophenol	24DCLP	0.18	13.0	2.90	200
1,2,4-Trichlorobenzene	124TCB	0.040	13.0	1.80	50.0
Naphthalene	NAP	0.037	3.30	0.50	20.0
4-Chloroaniline	4CANIL	0.81	3.30	7.30	100
Hexachlorobutadiene	HCBD	0.23	13.0	3.40	100
4-Chloro-3-methylphenol	4CL3C	0.095	13.0	4.00	200
2-Methylnaphthalene	2MNAP	0.049	6.70	1.70	50.0
Hexachlorocyclopentadiene	CL6CP	6.20	13.0	8.60	100
2,4,6-Trichlorophenol	246TCP	0.17	13.0	4.20	100
2,4,5-Trichlorophenol	245TCP	0.10	13.0	5.20	200
2-Chloronaphthalene	2CNAP	0.036	13.0	0.50	200
2-Nitroaniline	2ANIL	0.062	13.0	4.30	100
Dimethylphthalate	DMP	0.17	13.0	1.50	100
Acenaphthylene	ANAPYL	0.33	6.70	0.50	50.0
2,6-Dinitrotoluene	26DNT	0.085	13.0	0.79	200
3-Nitroaniline	3NANIL	0.45	13.0	4.90	100

EXHIBIT 5-5

ESE CONTRACT REQUIRED QUANTITATION LIMITS

ANALYTE	USATHAMA ACRONYM	SOIL (µg/g) CERTIFIED REPORTING LIMITS	WATER (µg/L) CERTIFIED REPORTING LIMITS
alpha-BHC	ABHC	1.70	0.05
beta-BHC	BBHC	1.70	0.05
delta-BHC	DBHC	1.70	0.05
gamma-BHC (Lindane)	LIN	1.70	0.05
Heptachlor	HPCL	1.70	0.05
Aldrin	ALDRN	1.70	0.05
Heptachlor epoxide	HPCLE	1.70	0.05
Endosulfan I	AENSLF	1.70	0.05
Dieldrin	DLDRN	3.30	0.10
4,4'-DDE	PPDDE	3.30	0.10
Endrin	ENDRN	3.30	0.10
Endosulfan II	BENSLF	3.30	0.10
4,4'-DDD	PPDDD	3.30	0.10
Endosulfan sulfate	ESFSO4	3.30	0.10
4,4'-DDT	PPDDT	3.30	0.10
Endrin ketone	ENDRNK	3.30	0.10
Methoxychlor	MEXCLR	17.0	0.50
alpha-Chlordane	ACLDAN	1.70	0.05
gamma-Chlordane	GCLDAN	1.70	0.05
Toxaphene	TXPHEN	1.70	500
AROCLOR-1016	PCB016	33.0	1.00
AROCLOR-1221	PCB021	33.0	1.00
AROCLOR-1232	PCB232	67.0	2.00
AROCLOR-1242	PCB242	33.0	1.00
AROCLOR-1248	PCB248	33.0	1.00
AROCLOR-1254	PCB254	33.0	1.00
AROCLOR-1260	PCB260	33.0	1.00

NOTE: The certified reporting limits were derived from the EPA Contract Laboratory Program Contract required quantitation limits.

EXHIBIT 5-6

ESE REPORTING LIMITS FOR EXPLOSIVES

ANALYTE	USATHAMA ACRONYM	SOIL (µg/g)		WATER (µg/L)	
		CERTIFIED REPORTING LIMIT	UPPER REPORTING LIMIT	CERTIFIED REPORTING LIMIT	UPPER REPORTING LIMIT
1,3-Dinitrobenzene	13DNB	0.496	24.8	0.519	40.1
2,4-Dinitrobenzene	24DNB	0.424	21.2	0.612	40.2
2,6-Dinitrobenzene	26DNB	0.524	26.2	1.15	52.4
HMX	HMX	0.666	33.3	1.65	28.9
Nitrobenzene	NB	2.41	27.4	1.07	54.9
RDX	RDX	0.587	21.9	2.11	43.9
Tetryl	TETRYL	0.731	20.2	0.556	44.5
1,3,5-Trinitrobenzene	135TNB	0.488	24.4	0.626	42.1
2,4,6-Trinitrotoluene	246TNT	0.456	22.8	0.588	40.2

EXHIBIT 5-7

USATHAMA ANALYTICAL METHOD NUMBERS

METHOD	MATRIX	USATHAMA METHOD NUMBER
ICAP	Soil	JS11
	Water	SS10
GFAA	Soil	JD15 (Selenium) JD19 (Arsenic)
	Water	SD09 (Thallium) SD20 (Lead) SD21 (Selenium) SD22 (Arsenic) SD23 (Silver)
CVAA	Soil	JB01 (Mercury)
	Water	SB01 (Mercury)

The analytical method for the analysis of semivolatile constituents involved spiking the sample with a known amount of surrogate compounds and extracting a designated amount of sample with methylene chloride. The extract was concentrated to a predefined volume, and internal standards were added to the extract prior to injection onto the chromatographic column. Separation of constituents was performed on the chromatographic column and detection was effected by a mass spectrometer. USATHAMA methods LM18 and UM18 were used for the analysis of soil and water samples, respectively.

Explosives were analyzed in soil and water samples using USATHAMA methods LW12 and UW14, respectively. The soil method involved the extraction of a predefined amount of soil using acetonitrile. The extract was filtered and diluted with a known amount of contaminant free water. The target analytes were then separated on a high pressure liquid chromatography column using isocratic elution, and were detected using ultraviolet absorbance. The water protocol is comparable to the soil technique, but different extraction procedures were used.

5.4 DATA QUALITY OBJECTIVES

Data quality objectives for analytical services were developed during the development of the project work plan and maintained throughout the course of chemical analyses. Quality control samples were analyzed to provide verification that the analytical method performance was comparable or better than levels achieved during initial method certification. Data acquired from the quality control samples were plotted on control charts to assist in the evaluation of the method performance.

In accordance with USATHAMA protocols, ESE was required to submit quality control charts on a frequent basis during sample analysis for USATHAMA review. The quality control charts were used by USATHAMA to monitor the daily variations in the USATHAMA-certified analyses and provide inferences on method performance. The designated USATHAMA project chemist was responsible for evaluating the quality control chart submittals and determining the data acceptability based upon trend analysis. A lot confirmation letter was submitted to the USATHAMA project officer and the ICF KE Quality Assurance Manager. A review of the lot confirmation letters suggested that the control data for lots submitted by ESE were acceptable.

5.5 PHYSICAL DATA QUALITY ASSESSMENT

5.5.1 Survey Protocols

An asbestos survey was conducted to discern the presence of asbestos containing material in the Hanley Area of SLOP. All sampling and survey protocols were performed in accordance with specifications delineated in TM5-612, Asbestos Control, (Draft, January 25, 1989) and the *Guidance for Controlling Asbestos-Containing Materials in Buildings* (EPA 560/5-85-024).

The survey consisted of an initial review of building drawings and facility documents to identify highly suspected areas for the presence of asbestos containing material (ACM). Materials were inspected throughout each building and the tunnel system. Information pertaining to the location, amount, condition, and potential disturbance of suspect ACM was recorded in the field logbook. Highly suspect samples were submitted to the laboratory for the analysis of asbestos content. In addition, a duplicate or "split" sample was collected to evaluate the accuracy of field sampling techniques.

The suspect ACM samples were collected in accordance with industrially acceptable standard operating procedures by an Asbestos Hazard Emergency Response Act (AHERA) certified inspector. Samples were collected to be representative of the sampling area.

5.5.2 Laboratory QA/QC

The laboratory responsible for analyzing insulation material for asbestos content was Certified Engineering & Testing Company (CETCO), Weymouth, Massachusetts. CETCO participates in three national accreditation and certification programs: NIOSH Proficiency in Analytical Testing (PAT) program required for an AIHA proficient lab; AIHA Asbestos Analyst Registry (AAR); and the National Voluntary Laboratory Accreditation Program (NVLAP) as mandated by the AHERA regulations, 40 CFR 763.

CETCO has a documented quality assurance program in place to ensure the accuracy and precision of systems involved in asbestos analysis. The quality assurance program provides standard operating procedures and structured quality control protocols to identify and minimize out-of-control occurrences.

CETCO provided bulk asbestos analysis for samples collected by ICF KE using EPA Method 600/M4-82-020 "Interim Method of the Determination of Asbestos in Bulk Insulation Samples". To ensure the accuracy of bulk sample analysis for asbestos containing material, CETCO processes a minimum of 10% quality control samples.

5.6 BLANK CONTAMINATION ASSESSMENT

Several rinse and trip blanks were collected to discern the potential for field contamination of environmental samples during collection activities. The analytical results from these samples are summarized in Exhibit 5-8.

5.6.1 Organic Contamination

Methylene chloride was detected at a concentration of 6.3 µg/L in soil rinse blank SORB-2. The water used to generate the rinse blank was Fisher Scientific deionized, ultra-filtered water. In accordance with USATHAMA field sampling protocols, no solvents were taken into the field during sampling activities. Methylene chloride could not have been acquired in the field as evidenced by the following facts: (1) none of the associated samples were contaminated with the constituent; (2) the trip blanks associated with the samples did not contain methylene chloride contamination; and (3) the initial soil rinse blank did not contain methylene chloride above the certified reporting limit. Although the laboratory method blank did not contain methylene chloride, the constituent is a common laboratory contaminant. Methylene chloride at part per billion (ppb) concentrations is often detected in the laboratory environment. The concentration of methylene chloride in the rinse blank is an inconsequential factor since none of the environmental samples contained the compound.

5.6.2 Metal Contamination

Several metals were detected above the certified reporting limit in the two soil rinse blank samples and the method blank associated with Lot TGQ. The following subsections discuss the results obtained and the impact on the associated samples.

Copper: Copper was detected in soil rinse blank SORB-1 at a concentration of 66.8 µg/L and in rinse blank SORB-2 at a concentration of 30.4 µg/L. A review of the associated soil samples did not indicate the presence of copper.

EXHIBIT 5-8

BLANK CONTAMINATION RESULTS

BLANK	SAMPLING DATE	RESULTS	
SORB-1[a]	09/24/90	GFAA metals Copper Iron Zinc Lead Mercury Explosives VOAs	< CRL[b] 65.8 µg/L 67.2 µg/L 44.1 µg/L 3.7 µg/L < CRL < CRL < CRL
SORB-2	09/25/90	GFAA metals Copper Iron Zinc Lead Mercury Explosives Methylene Chloride	< CRL 29.9 µg/L 85.5 µg/L 30.0 µg/L 2.3 µg/L < CRL < CRL 6.7 µg/L
SORTB-1[c]	09/24/90	VOAs	< CRL
SOTB-2	09/25/90	VOAs	< CRL
SOTB-3	09/26/90	VOAs	< CRL
Method Blank - Lot TGQ	Not Applicable	Iron	61.3 µg/L

LEGEND:

a - SORB-soil rinse blank
b - CRL-certified reporting limit
c - SOTB soil trip blank

Iron: The concentration of iron in soil rinse blanks SORB-1 and SORB-2 were 71.6 µg/L and 91.1 µg/L, respectively. Iron was also detected at a concentration of 61.3 µg/L in Lot TGQ, which included samples for water analysis of metals. The iron contamination in the rinse blanks was acquired from the laboratory environment as evidenced by the level detected in the lot method blank. Iron was not detected in the associated soil samples.

Lead: Lead was detected in rinse blank SORB-1 at a concentration of 4.0 µg/L and in soil rinse blank SORB-2 at a concentration of 2.5 µg/L. The soil rinse blanks were analyzed for lead concentration using graphite furnace atomic absorption spectroscopy (GFAA), while the associated soil samples were analyzed using inductively coupled argon emission spectroscopy (ICAP). The GFAA method for the detection of lead is approximately ten times more sensitive than the ICAP method. The levels of lead detection in these samples could have been acquired from a variety of sources and operations including: (1) sample digestion; (2) laboratory environment; or (3) cross contamination from the graphite furnace tube. The lead could have been acquired during sample digestion if the reagents used during the digestion process contained lead contamination. The residence time in the laboratory environment prior to sample analysis could have contributed to lead contamination. Residual lead may have come into contact with the samples through leaching from fume hoods, laboratory equipment, or other material that could be impacted by the corrosive action of acids used in metals analysis. The possibility also exists that the samples could have been cross-contaminated from the furnace tube. The rinse blanks were noted as being run numbers 32 and 34 in the Lot TUE associated with the samples. This lot contained samples from two other installations. Concentrations in the other samples, and whether an equipment rinse blank was processed after high level samples to preclude the occurrence of cross-contamination, are unknown.

Zinc: Zinc was detected in soil rinse blanks SORB-1 and SORB-2 at concentrations of 46.4 and 31.6 µg/L, respectively. Zinc was detected in the associated samples and the impact on the analytical data can not be estimated from the existing information.

5.7 BACKGROUND SAMPLES

A total of six background soil samples were collected from SLOP in areas not likely to be contaminated. These samples were analyzed to develop site-specific background values for various elements in soil.

In addition, outside sources were consulted to determine regional background levels of selected constituents. Concentrations of various metals were obtained from a USGS paper on the geography of soil geochemistry in the State of Missouri. The source indicated metal concentrations in agricultural soils within the State. Staff at the Missouri Department of Natural Resources affirmed that these data are indicative of native soils. Reported results included samples from within the glaciated region where SLOP is located, and less than fifteen miles from the site. The USGS sampling locations are represented by frequency classes which fall within a concentration range based on the total samples taken in the state. When the two sampling locations under investigation fall within the same frequency class, the mean concentration of the range is taken as the regional background level. When represented by different frequency classes, the mean is calculated along with the 95% confidence interval in order to obtain a representative concentration range for the samples under investigation. In most cases, this interval was less than 1 ppm and the background value is represented by its mean only. Zinc and lead are the only metals represented by a range due to a 95% confidence interval greater than 1 ppm. Regional background concentrations for inorganic analytes and results of inorganic analyses for background soil samples are shown in Exhibit 5-9. Most of the metals concentrations found in background soil samples collected at SLOP are at or below regional background values. However, concentrations of lead, nickel,

EXHIBIT 5-9

INORGANIC ANALYTES IN BACKGROUND SOIL SAMPLES DETECTED ABOVE THE CRL

[Constituents measured in µg/g (ppm)]

Constituent	Certified Reporting Limit	SS40A	SS40B	SS53A	SS53B	SS54A	SS54B	*Regional Background Concentration
Aluminum	14.1	10,400	12,100	13,700	11,700	11,800	10,900	47,100
Antimony	3.8	NRQ	NRQ	NRQ	LT	NRQ	LT	not available
Arsenic	.25	NRQ	NRQ	NRQ	9.62	NRQ	7.37	13
Barium	29.6	204	184	313	283	233	211	700
Beryllium	1.86	LT	LT	LT	LT	LT	LT	< 1
Cadmium	3.05	LT	LT	LT	LT	LT	LT	not available
Calcium	59.0	22,100	6,290	10,500	15,000	23,300	12,700	4620
Chromium	12.7	LT	25.7	LT	LT	LT	LT	64
Cyanide	.92	NRQ	NRQ	NRQ	LT	NRQ	LT	not available
Cobalt	15.0	NRQ	NRQ	NRQ	LT	NRQ	LT	8.35
Copper	58.6	LT	LT	LT	LT	LT	LT	13.25
Iron	50.0	18,700	20,300	19,800	18,100	17,700	17,200	25,000
Lead	.177	39.3	10.3	21.6	23.6	52.4	23.3	23–25
Magnesium	50.0	6,970	5,400	5,680	5,990	7,710	5,500	3200
Manganese	.275	723	720	1,140	1,080	956	954	847
Mercury	.050	LT	LT	LT	LT	LT	LT	.09
Nickel	12.6	29.0	30.1	30.8	30.5	27.9	48.6	19
Potassium	37.5	1,120	1,240	1,690	1,420	1,390	1,130	31,300
Selenium	.25	NRQ	NRQ	NRQ	LT	NRQ	LT	.28
Silver	2.50	LT	LT	LT	LT	LT	LT	not available
Sodium	150	581	584	459	462	492	627	9342
Thallium	31.3	NRQ	NRQ	NRQ	LT	NRQ	LT	not available
Vanadium	13.0	NRQ	NRQ	NRQ	48.0	NRQ	49.4	70
Zinc	30.2	141	92.6	110	109	112	86.1	89–107

*Tidball, R., 1984, Geography of Soil Geochemistry of Missouri Agricultural Soils; Geochemical Classification by Factor Analysis of Missouri Agricultural Soils: USGS Professional Paper 954-H, I, Washington, DC USGPO.

NOTE: Samples ending in 'A' were generally collected from a depth interval of 0–1 ft. Samples ending in 'B' were generally collected from a depth interval of 1–2 ft.

LT = less than CRL

NRQ = analysis not requested for this sample.

and zinc in some of these samples exceed regional background levels (see Exhibit 5-9). For example, soil sample SS54A has a lead concentration twice the regional background range.

Some semivolatile organic compounds were observed at trace levels (<1 ppm) in the background soil samples (see Exhibit 5-10). The compounds observed belong to a group of compounds known as polycyclic aromatic hydrocarbons (PAHs). Although all the compounds listed can occur naturally in soil (Dragun 1988), their presence is probably due to the proximity of the sampling locations to an asphalt parking lot. Background samples were collected within 10–40 feet of an asphalt parking lot and traces of asphalt were reported in the physical description of some of these samples.

EXHIBIT 5-10

ORGANIC ANALYTES IN BACKGROUND SOIL SAMPLES DETECTED ABOVE THE CRL

[Constituents measured in μg/g (ppm)]

Constituent	Certified Reporting Limit	SS40A	SS40B	SS53A	SS53B	SS54A	SS54B
Anthracene	0.03	NRQ	NRQ	NRQ	0.08	NRQ	LT
Benz[*a*]anthracene	0.17	NRQ	NRQ	NRQ	0.21	NRQ	0.17
Benzo[*b*]fluoranthene	0.21	NRQ	NRQ	NRQ	0.39	NRQ	LT
Benzo[*k*]fluoranthene	0.07	NRQ	NRQ	NRQ	0.13	NRQ	0.08
Chrysene	0.12	NRQ	NRQ	NRQ	0.45	NRQ	0.29
Fluoranthene	0.07	NRQ	NRQ	NRQ	0.76	NRQ	0.45
Phenanthrene	0.03	NRQ	NRQ	NRQ	0.47	NRQ	0.16
Pyrene	0.03	NRQ	NRQ	NRQ	0.52	NRQ	0.36

NOTE: Samples ending in "A" were generally collected from a depth interval of 0–1 ft. Samples ending in "B" were generally collected from a depth interval of 1–2 ft.

LT = less than CRL.
NRQ = analysis not requested for this sample.

6.0 INVESTIGATIVE RESULTS AND CONTAMINATION ASSESSMENT

A site assessment study was performed at the Hanley Area to: (1) determine the nature and extent of site contamination; (2) evaluate contamination migratory characteristics; (3) investigate potential contamination impacts upon receptors; and (4) define alternative remedial strategies. An asbestos survey and surface soil and tunnel water investigations were conducted to establish baseline information on potential pollutants. This section of the report discusses the investigations performed in support of this project and is limited to the information acquired from the asbestos location survey and the surface soil and tunnel system water sampling conducted in September, 1990. Specific remediation alternatives are discussed and evaluated in Section 7.0. All chemical analytical data obtained during the investigation are shown in Appendix A.

6.1 SOURCES AND DISTRIBUTION OF ASBESTOS CONTAINING MATERIAL (ACM)

Airborne asbestos contamination in buildings presents significant health risks to personnel exposed to these conditions. The presence of ACM in a building does not necessarily constitute a hazardous condition when the ACM is in a good condition and is not disturbed. Any ACM present becomes a potential hazard when activities are undertaken that disturb or damage the ACM.

An asbestos location survey was conducted in the Hanley study area to determine the location and distribution of friable and nonfriable ACM. The survey covered all accessible areas and included buildings, basements, tunnels, and exterior steam pipes. Pipes were color coded with spray paint during the inspection, where accessible, to visually delineate the areas of ACM. Red dots and arrows were used to denote and bracket the areas of ACM. The color blue was used in a similar manner to denote other materials. Suspect ACM samples were submitted to a certified asbestos analysis laboratory to determine the percent asbestos by weight. EPA criteria were used for defining asbestos, i.e., whether the asbestos weight content is greater than one percent. Results obtained from the asbestos sampling, shown in Exhibit 6-1, reveal that many construction materials and pipe insulation in the Hanley Area are classified as ACM.

The information acquired from the survey was sufficient to make estimates of the condition of ACM and the development of remediation strategies for abatement. Approximately six (6) miles of ACM on pipe lagging was identified in the Hanley study area. The following sections present the findings of the asbestos survey for each investigative area.

6.1.1 Source Areas

Tunnels

Tunnels surveyed included all cross hatched areas depicted in Exhibit 3-1 (Pocket A) and the six elevated crawl spaces leading to the 219 bunkers (west bunkers). There are approximately two linear miles of ACM lagging on pipes within the tunnels.

Basements

Basement spaces beneath six buildings and two groups of bunkers shown on Exhibit 3-1 (Pocket A) were surveyed during the asbestos survey. Included in this survey were three basements associated with Buildings 218A, 218B, and 218C; one basement and two crawl spaces associated with Buildings 219A, 219D, and 219G; and four basement rooms under the 228 series of bunkers, which are divided into two groups. There are no basements under the 227 series of bunkers.

EXHIBIT 6-1

SUSPECT ASBESTOS-CONTAINING MATERIAL SURVEY—
SAMPLE LOCATIONS AND ANALYTICAL RESULTS[1]

SAMPLE DESIGNATION	DESCRIPTION/LOCATION	ANALYTICAL RESULTS
AB-001	Roof shingle/219 J Bunker	No Asbestos Detected
AB-002	Tar paper/219 J Bunker	No Asbestos Detected
AB-003	Pipe lagging - cold water return/219 J Bunker	15-20% Asbestos (Chrysotile)
AB-004	Pipe lagging - cold water supply/219 J Bunker	15-20% Asbestos (Chrysotile)
AB-005	Pipe lagging - outdoor steam pipe/227 Q Bunker	50-55% Asbestos (Chrysotile)
AB-006	White colored siding/227 Q Bunker	75-80% Asbestos (Chrysotile)
AB-007	Pipe lagging - cold water drop pipe/218 C	10-15% Asbestos (Chrysotile)
AB-008	Pipe lagging - cold water fire extinguisher drop pipe/218 C	5-10% Asbestos (Chrysotile)
AB-009	Pipe lagging - large heat exchanger jacket/218 B basement	35-40% Asbestos (Chrysotile)
AB-010	Pipe lagging - large steam line off heat exchanger/ 218 B basement	50-55% Asbestos (Chrysotile)
AB-011	Red "spark proof" floor/Warehouse 219 G	1-5% Asbestos (Chrysotile)

[1] Limited asbestos survey conducted by ICF KE from June 28-30, 1989.

The three Building 218 basement spaces each contained an estimated 1,080 linear feet of ACM, which is in good condition and does not present an imminent hazard. An additional 120 square feet of ACM in these basements was found to be associated with a small and a large heat exchanger located in each of these three basements. A sample of the ACM showed that the large heat exchanger jacket contains approximately 75 square feet of chrysotile and amosite asbestos. Visual inspection indicated that the small heat exchanger contained the same material as the large heat exchanger. The small heat exchanger contains approximately 45 square feet of ACM. The three basements located beneath buildings 219A, 219D, and 219G contain a total of 1,320 linear feet of ACM that is not friable and in good condition.

The basement below bunkers 228A, 228B, and 228C contains 570 linear feet of ACM, while the basement below bunkers 228D, 228E, and 228F contains 620 linear feet of ACM. The ACM in these basement spaces remains in good condition. The basement beneath 228M/Y-North contains 620 linear feet of ACM. The basement beneath 228G/Y-South contains 800 linear feet of ACM that is non-friable and in good condition. The 228M/Y-North basement contains approximately 100 linear feet of broken lagging were found on the floor or leaning from pipe to floor. This condition could pose an environmental health hazard if the ACM was friable and someone was present in the area.

<u>Buildings and Floors</u>

Approximately three lineal miles of ACM were identified in above-ground pipe lagging associated with the chilled water return, chilled water supply, steam, and hot water pipes located in buildings 218A, 218B, and 218C. In addition, 800 lineal feet of ACM was found on pipe lagging in 26 bunkers. During the survey, one sample of red "spark proof" flooring showed the presence of chrysotile asbestos. Based upon this finding, the installation submitted 14 additional samples to a different accredited laboratory, which corroborated the initial results and estimated a high probability that all red "spark proof" floors contain chrysotile. A number of the flooring locations have buckled from exposure to moisture and weathering. In some cases, the floor can be pulverized with normal finger pressure and can therefore be classified as friable.

Only 11 of the 16 bays associated with the 227 bunkers were accessible at the time of the ACM survey. Bunkers located in the 227 block in the south portion of the site contain transite exterior shingles. Analysis of the shingle material indicates a chrysotile asbestos content of 75-80% by weight. Each of the bunkers contain approximately 350 square feet of exterior shingles for a combined total of 3,850 square feet of ACM. Although approximately ten (10) percent of the shingled surface area appeared to be damaged, the asbestos is tightly bound in the matrix and does not represent friable material.

6.2 TUNNEL SYSTEM WATER

Two tunnel system water samples were collected from utility tunnels located approximately 12 feet beneath the Hanley area, and identified as samples SW09 and SW10. Samples were analyzed for EPA Target Analyte List (TAL) inorganic constituents and EPA Target Compound List (TCL) volatile and semi-volatile organic compounds as well as explosives.

Sample SW09 was collected in the tunnel access area across Goodfellow Boulevard, at the base of the tunnel ladder. Samplers noted that the water was stagnant. This area is not blocked off from access in the direction of privately owned property.

Sample SW10 was collected near a vent of the tunnel system in the northwest quadrant of the study area. The vent area has an additional twelve foot drop off. Standing water in the tunnel was approximately six inches deep. During the sampling activity, water infiltration (discharge from a leaking pipe) was noted. The origin of the leak (type of pipe) was not confirmed, but appeared to be a broken municipal water line. The water flowed due north through Building 220 and potentially into the drainage system along Stratford Avenue.

As of July 16, 1991, all utility lines within the tunnel system were inactivated. Standing pools of water are no longer observed in the tunnel system. A potential pathway for water entering the tunnel system still exists (i.e., surface water runoff), but the amount of standing water received will be negligible.

6.2.1 Inorganic Contamination

Tunnel system water samples were analyzed for 23 metals and cyanide. Metals detected above the method certified reporting limits include aluminum, barium, calcium, chromium, copper, iron, lead, potassium, magnesium, manganese, sodium, and zinc. The results of these analyses are presented in Exhibit 6-2. The presence of these constituents in surface water samples is consistent with the types of past operations and compounds used in the study area.

Federal regulations for surface water quality are not applicable to the water located in these tunnels. The probability of this water being accidently ingested is extremely low, therefore the Federal drinking water regulations would not be applicable. The most appropriate regulation for the study area is the Metropolitan St. Louis Sewer District (MSLSD) Ordinance No. 4786, which is applicable to the introduction of pollutants into the municipal wastewater system. Exhibit 6-3 contains a list of the effluent discharge limits for the MSLSD compared to analytical data acquired for the surface water samples. The MSLSD ordinance specifies that the listed pollutants shall not exceed a 24 hour concentration in the wastewater as measured at a point prior to discharge to the public sewer, and at no time shall the pollutant exceed three (3) times the average 24 hour concentration specified regardless of wastewater flow. Lead is the only metal detected with the potential for posing a threat, with concentrations close to the effluent limit in sample SW10 and exceeding the limit by a factor of two in sample SW09. However, these samples were not collected directly at the discharge point and the impact cannot be quantified.

6.2.2 Organic and Explosive Contamination

Volatile and semivolatile organic compounds were not detected above their respective certified reporting limits in either of the tunnel system water samples. One explosive, Pentaerythritol Tetranitrate (PETN), was detected at a concentration of 20 μg/L in sample SW09, which is also the method certified reporting limit for this constituent. PETN is the most sensitive of the secondary high explosives in general use and was used as an initiating agent during prior operations in the Hanley Area. Currently, there are no health advisories for this constituent.

6.3 SURFACE SOIL SAMPLES

Surface soil samples were collected, classified, and analyzed to determine the type, levels, and horizontal extent of hazardous contamination. A total of twenty-nine (29) surface soil samples were collected and analyzed for chemical constituents in support of this investigation, (refer to Exhibit 3-2 (Pocket B) for sampling locations). Samples were collected at a depth of 0-1 foot and 1-2 feet at each location with the exception of locations SS41 and SS42 where auger refusal was encountered at a depth of less than two feet due to the presence of a concrete slab upon which Bunker 228E rests. All samples were analyzed for metals and explosives, the major analytes of concern at the site. Samples collected at the 0-1 foot depth interval were generally analyzed for sixteen (16) ICAP metals, explosives, and mercury, with the exception of SS41 which was analyzed for the full TAL/TCL and explosives. Samples

EXHIBIT 6-3

RESULTS OF ANALYSES FOR TUNNEL SYSTEM WATER SAMPLES COMPARED TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT DISCHARGE LIMITS REPORTED IN μg/L

Constituent	Metropolitan St. Louis Sewer District Discharge Limit[1]	SURFACE WATER SAMPLES	
		SW09	SW10
Lead	200	443	185
Barium	10,000	87.9	30.6
Chromium	5,000	22.3	8.25
Zinc	3,000	481	341
Copper	1,500	49.4	54.8
Iron	15,000	3,750	1,650

[1] Value obtained from the Metropolitan St. Louis District Ordinance No. 4786. Values are 24-hour average concentrations.

the full TAL/TCL and explosives. Samples collected at the 1-2 feet depth interval were analyzed for TAL/TCL and explosives, except for samples SS40, SS43, SS45, SS49, and SS50 which were analyzed for ICAP metals and explosives.

6.3.1 Background Samples

Samples from three background locations (SS40, SS53 and SS54) were obtained in support of this investigation. The samples were collected in a grassy location outside of the study area but within the original SLOP property boundaries. Sample SS40 was located approximately 500 feet southwest of the intersection of the security fences, which served as a reference point. The reference point itself is in the far west corner of the Hanley area (see Exhibit 3-2). SS53 was located 750 feet southwest of the reference point, and SS54 was located approximately 850 feet from the reference point. The majority of the analytical constituents were not detected above the State of Missouri regional background concentrations, (Tidball, R., 1984, Geography of Soil Geochemistry of Missouri Agricultural Soils; Geochemical classification by Factor Analysis of Missouri Agricultural Soils, USGS Professional Paper 954-HI, Washington, D.C.), with the exception of lead in SS54 and zinc in all of the samples.

Lead was detected at a concentration of 52.4 µg/g in the 0-1 foot interval and at a concentration of 23.3 µg/g in the 1-2 feet interval at location SS54. Although lead concentrations were significantly above regional levels (23-25 µg/g), EPA has not established proposed action level for soil samples.

Zinc was detected at concentrations of 142, 110, and 112 µg/g in the 0-1 foot interval of samples SS40, SS53, and SS54, respectively. The corresponding concentrations in the 1-2 feet interval were 92.6, 109, and 86 µg/g. The regional background concentration for zinc ranged between 89-107 µg/g.

6.4 NON-BACKGROUND SAMPLES

6.4.1 Inorganic Contamination

With the exception of a few elements, all metals were found to be at or below site-specific background concentrations and the State of Missouri regional background levels. The analytical results are shown in Exhibit 6-4. The only constituent detected in several of the sampling locations above regional background concentrations was lead. Exhibit 6-5 lists the lead concentrations found which were above the regional levels, and describes prior activities associated with each sampling location. Primer materials containing lead azide are a likely source of the lead found in these samples. Lead was detected at higher concentration in the 0-1 foot interval and at decreased concentrations for the lower depths (exceptions are samples SS46 and SS49, which had higher lead concentrations for the 1-2 feet interval. However, the area where these two samples were taken are areas which may have received some clean soil which was brought in to fill low spots. Therefore these "B" samples at depth would then become equivalent to other surface "A" samples.). As discussed in Section 4 of this report, the State of Missouri has not developed clean up levels for contaminants in soil.

6.4.2 Organic Contamination

No explosives constituents were detected in any of the soil samples. The samples were generally free of organic contamination with the exception of polychlorinated biphenyls (PCBs) in sample SS55 (0-1') and polynuclear aromatic hydrocarbons (PAHs) in trace concentrations in samples SS41 (0-1'); SS44 (1-2'); SS48 (1-2'); SS51 (1-2'); and SS52 (1-2'). The analytical results are shown in Exhibit 6-6. SS55 was collected below a transformer at bunker 228C. The analysis confirmed the presence of PCB-1260 at a concentration of 17,900 µg/g. The PAHs were detected at low levels, probably attributable to constituents present in the fill material.

EXHIBIT 6-4

RESULTS OF INORGANIC ANALYSES FOR SOIL SAMPLES OTHER THAN BACKGROUND SAMPLES

[Constituents measured in µg/g (ppm)]

Constituent	Certified Reporting Limit	SS41A	SS42A	SS43A	SS43B	SS44A	SS44B	SS45A	SS45B	SS46A	SS46B	SS47A	SS47B	SS48A	SS48B	SS49A	SS49B	SS50A	SS50B	SS51A	SS51B	SS52A	SS52B
Aluminum	14.1	6,950	11,600	12,900	13,300	8,690	10,600	9,290	9,290	7,170	8,760	11,100	12,000	11,100	10,400	9,430	9,470	9,630	9,640	10,800	10,600	8,520	11,000
Antimony	3.8	LT	NRQ	NRQ	NRQ	NRQ	LT	NRQ	NRQ	NRQ	LT	NRQ	LT	NRQ	LT	NRQ	NRQ	NRQ	NRQ	NRQ	LT	NRQ	LT
Arsenic	.25	9.00	NRQ	NRQ	NRQ	NRQ	NRQ	9 31	NRQ	NRQ	8.44	NRQ	LT	NRQ	LT	NRQ	NRQ	NRQ	NRQ	NRQ	LT	NRQ	LT
Barium	29.6	120	194	409	224	249	249	286	188	199	434	244	291	233	177	256	293	279	229	243	204	215	214
Beryllium	1.86	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
Cadmium	3 05	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
Calcium	59 0	223,000	30,300	14,600	54,100	9,290	13,800	20,600	18,900	15,900	8,750	8,750	6,020	25,500	14,700	12,700	12,000	9,750	7,070	7,570	9,050	5,810	10,600
Chromium	12.7	LT	LT	24.6	LT	LT	57.8	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
Cyanide	.92	LT	NRQ	NRQ	NRQ	NRQ	LT	NRQ	NRQ	NRQ	LT	NRQ	LT	NRQ	LT	NRQ	NRQ	NRQ	NRQ	NRQ	LT	NRQ	LT
Cobalt	15.0	LT	NRQ	NRQ	NRQ	NRQ	LT	NRQ	NRQ	NRQ	LT	NRQ	LT	NRQ	LT	NRQ	NRQ	NRQ	NRQ	NRQ	LT	NRQ	LT
Copper	58.8	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
Iron	50.0	11,100	17,900	19,100	18,100	15,400	17,500	16,800	14,500	14,600	16,400	17,600	18,700	18,300	14,800	16,600	18,000	14,400	16,000	17,800	16,400	14,700	15,900
Lead	.177	114	74.4	98.7	33.9	28.5	26.5	56.5	15.9	18.3	71.9	94.4	18.6	40.7	12.0	23.4	65.9	25.7	17.9	26.1	23.8	38.8	14.9
Magnesium	50 0	15,500	6,760	5,260	6,860	6,010	6,720	4,890	3,870	10,200	5,020	5,000	4,010	4,750	5,860	5,930	4,270	4,960	4,260	5,000	4,150	3,000	4,520
Manganese	275	602	707	1,040	754	1060	898	838	798	1,070	921	990	1,030	863	697	1,040	1,120	1,050	971	965	927	1,090	904
Mercury	050	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
Nickel	12.6	LT	27.1	28.4	26.8	29.33	32.2	26.0	24.9	27.9	28.2	29.0	31.1	28.3	LT	29.9	30.8	27.0	25.7	29 5	25.7	LT	29 2
Potassium	37.5	1,070	1,420	1,550	1,540	1,090	1,100	981	927	1,100	1,400	1,400	1,350	1,530	892	1,930	2,220	1,460	1,160	1,290	1,000	1,230	1,250
Selenium	.25	LT	NRQ	NRQ	NRQ	NRQ	LT	NRQ	NRQ	NRQ	LT	NRQ	LT	NRQ	LT	NRQ	NRQ	NRQ	NRQ	NRQ	LT	NRQ	LT
Silver	2.5	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT
Sodium	150	508	475	484	320	515	678	362	444	609	440	345	419	385	378	435	481	484	496	443	370	353	411
Thallium	31.3	LT	NRQ	NRQ	NRQ	NRQ	LT	NRQ	NRQ	NRQ	LT	NRQ	LT	NRQ	LT	NRQ	NRQ	NRQ	NRQ	NRQ	LT	NRQ	LT
Vanadium	13.0	33.4	NRQ	NRQ	NRQ	NRQ	44.0	NRQ	NRQ	NRQ	42.7	NRQ	50.2	NRQ	46.1	NRQ	NRQ	NRQ	NRQ	NRQ	46.8	NRQ	51.1
Zinc	30.2	119	132	197	105	104	98.3	221	94.1	84.6	177	152	107	137	72.9	109	164	102	92.5	107	87.5	118	91 9

NOTE: Samples ending in 'A' were generally collected from a depth interval of 0–1 ft. Samples ending in 'B' were generally collected from a depth interval of 1–2 ft.

NRQ = *analysis not requested for this sample.*

LT = less than certified reporting limit.

EXHIBIT 6-5

LEAD CONCENTRATIONS DETECTED ABOVE THE STATE OF MISSOURI REGIONAL BACKGROUND LEVELS

Sampling Location	Lead Concentration µg/g)	Location	Prior Operations
SS41 (0-1')	114	Grassy area near Series 228 bunkers.	Powder storage. Heavy metal residues noted in all magazines from previous reports.
SS42 (0-1')	74.4	Washout soil from Series 228 bunkers.	
SS43 (0-1')	98.7	South side of Building 218C in grassy area near door.	Primer and tracer mixing. Explosives and heavy metals present in building.
SS45 (0-1')	56.5	Grassy area approximately 8 feet from western side of Building 218C.	
SS46 (1-2')	71.9	Grassy area on the east side of Building 218C.	
SS47 (0-1')	94.4	West of Building 219G.	Primer and tracer mixing. Heavy metals present in building.
SS49 (1-2')	65.9	Grassy areas east of Building 218B.	Primer and tracer mixing. Explosives and heavy metals present in building.

EXHIBIT 6-6

ORGANIC ANALYTES DETECTED ABOVE THE CRL IN NON-BACKGROUND SOIL SAMPLES

[All constituents measured in µg/g (ppm)]

Constituent	Certified Reporting Limit	SS41A	SS44B	SS46B	SS47B	SS48B	SS51B	SS52B	SS55A
Fluoranthene	0.07	0.11	0.11	LT	LT	0.34	0.91	0.29	NRQ
Pyrene	0.03	0.10	0.09	LT	LT	0.27	0.65	0.22	NRQ
Anthracene	0.03	LT	LT	LT	NRQ	LT	0.10	LT	NRQ
Benz[*a*]anthracene	0.17	LT	LT	LT	NRQ	LT	0.29	LT	NRQ
Benzo[*b*]fluoranthene	0.21	LT	LT	LT	NRQ	LT	0.48	LT	NRQ
Benzo[*k*]fluoranthene	0.07	LT	LT	LT	NRQ	LT	0.15	LT	NRQ
Chrysene	0.12	LT	LT	LT	NRQ	0.27	0.53	0.22	NRQ
Phenanthrene	0.03	LT	LT	LT	NRQ	0.14	0.60	0.13	NRQ
PCB 1260	33.0	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	17,900

NOTES: Samples SS41B, SS42A, SS43A, SS43B, SS44A, SS45A, SS45B, SS46A, SS47A, SS48A, SS49A, SS49B, SS50A, SS50B, SS541A, and SS52A were not sampled for the above constituents. Samples ending in "A" were generally collected from a depth interval of 0–1 ft. Samples ending in "B" were generally collected from a depth interval of 1–2 ft.

LT = less than certified reporting limit.
NRQ = analysis not requested for this sample.

6.4.3 Toxicity Characteristic Leaching Procedure

The toxicity characteristic leaching procedure (TCLP) was used to analyze four soil samples, to determine if these soils could be considered hazardous because of toxicity. The sampling locations were SS41 (0-1'), SS44 (1-2'), SS47 (1-2'), and SS51 (1-2'), (refer to Exhibit 3-2-Pocket B). The analytical results are shown in Exhibit 6-7. Sample SS41 was collected on the west side of the 228 series bunkers. The 228 area had previously been associated with explosives storage. Sample SS44 was collected in the vicinity of the 227 series bunkers, 16 yards south of a gate entrance within the security fence. These bunkers were also used for the storage of explosives. Sample SS47 was collected at the west end of Building 219G, which had previously been used for the loading of explosives during cleanup operations. Sample SS51 was obtained from a grassy area east of Building 218A. This building was used for non-explosive storage. No volatile or semivolatile TCLP organic compounds were detected above their respective certified reporting limits in any of these 4 samples. Barium, cadmium, and lead were the only inorganic analytes detected above the method certified reporting limit, at concentrations far below regulatory limits (see Exhibit 6-7). If the four sampling locations are assumed to be representative of surface soil at the site, then it is likely that none of the surface soil on site would be classified as hazardous because of toxicity. The TCLP results also indicate a low potential for leaching of metals from the soil matrix. Concentrations of leachable metals in the soil matrix are related to leachate concentrations from the TCLP results by considering the volume of extraction medium (2L) and the amount of soil extracted (100 g). For example, TCLP results for sample SS41A (LT 18.6 μg/L) correspond to a leachable lead concentration of less than 1.0 μg/g in the soil, compared to a total lead concentration of 155 μg/g provided by ICAP analysis. Similar results indicate that none of the metals detected in the soil samples would be leached readily from the matrix.

6.5 CONTAMINATION AND EXPOSURE ASSESSMENT

6.5.1 Asbestos-containing Materials

Significant amounts of construction materials and insulation containing ACM were found throughout the Hanley Area. Most of the ACM are found inside buildings, bunkers, or tunnels and some of the sources are intact and protected. There is also a high probability that asbestos has contaminated dust and soil within, beneath, and surrounding those structures containing source materials in a state of disrepair. All of the ACM are in restricted areas where access is occasional and limited to authorized personnel. Thus, direct exposures to airborne ACM under current site conditions are not significant except from potential low levels that might be entrained in wind-blown dust.[2] However, the type and extent of ACM are such that any renovation, demolition, or clean-up activity will require specific precautions to minimize exposures to airborne asbestos fibers. Any activity involving disturbance of construction materials (and possibly also dust and soils) in the Hanley Area has a high potential for resulting in both on-site and off-site exposures unless stringent precautions are exercised.

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[2]At the time of the field investigation, access to areas within the security fences by unauthorized personnel is not completely restricted; evidence of recent trespassing and vagrancy (including food wrappers, ashes from fires, bedrolls, and blankets) were noted in the building basements, tunnels, and bunkers. Several access means including a hole in the security fence and two tunnel exits connecting to outside areas were found at the site. Thus, accidental exposure to contaminants at the site (including asbestos and materials found in water and on building surfaces) were possible. Since July, 1990, access control to the area has been significantly increased.

EXHIBIT 6-7

RESULTS OF TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) INORGANIC CONSTITUENTS

[μg/L (ppb)]

Constituent	Certified Reporting Limit	SS41A	SS44B	SS47B	SS51B	Regulatory Level
Arsenic, total	2.54	LT	LT	LT	LT	5,000
Barium, total	5.00	781	956	881	682	100,000
Cadmium, total	4.01	4.78	5.59	LT	LT	1,000
Chromium, total	6.02	LT	LT	LT	LT	5,000
Lead, total[1]	18.6	LT	LT	LT	47.1	5,000
Mercury	.2	LT	LT	LT	LT	200
Selenium, total	3.0	LT	LT	LT	LT	1,000
Silver, total	4.6	LT	LT	LT	LT	5,000

[1]Analyzed using ICAP method.

LT = less than certified reporting limit.

6.5.2 Tunnel System Water

Tunnel system water containing metals and one explosive detected at the method certified reporting limit was observed in the field work conducted in September, 1990. At that time, tunnel system water had migrated or had a high potential for migrating beyond the controlled boundaries of the Hanley area. The potential for exposures to this contamination appeared to be limited, but uncertainties remained about the fate of the discharges beyond the site boundaries.

During the September 1990 field work, flowing water present in the south-north tunnel discharged directly to the surface and/or subsurface near the northern property boundary of the Hanley Area adjacent to Building 220, and an observed swampy area along the boundary fence north of the building was thought to be a result of this discharge. Thus, it was determined that there was a high potential that lead contamination found in water within the tunnel was migrating off site. During a site tour by USATHAMA in July, 1991 no swampy area was observed along the boundary fence north of Building 220. By this point in time, all utility lines running beneath the Hanley area had been inactivated, and thus the source of flowing water observed in September, 1990, had been removed.

Contamination was also found off site in standing water within the west-east tunnel that extends across Goodfellow Boulevard. The tunnel vent at the sampling point is on property previously within the original SLOP boundaries and currently owned by the Goodenough Box Company.[3] Because of the essentially unrestricted access, there is a potential for human contact with the stagnant water in the tunnel. (Access is possible, in fact, to other portions of the tunnel system.) The fate of water downgradient from this point in the tunnel is not certain, although a brick wall in the tunnel adjacent to the vent might hinder further migration. It is expected that water from the tunnel ultimately discharges to the surface several hundred yards east of the Hanley Area. No flow in this tunnel was observed during three visits to the site, although there was evidence of periodic sediment deposit and removal that could only occur if water flowed along the tunnel floor.

6.5.3 Building and Surface Soil Contamination

Previous studies have noted several areas with a high potential for explosives and metals contamination, and the current study focused on determining whether contamination within the structures has resulted or could result in unacceptable exposures and risks. Sampling of surface soils in the Hanley Area, although of limited scope, indicates a low potential for exposures via contact with runoff from the surface. No explosive contamination was found in these soils, and analysis of soil samples for inorganic constituents showed concentrations of most metals to be at or below site-specific background levels and regional background levels. Lead appears to be the metal of greatest concern in the Hanley Area. The concentrations of lead detected in the surface soil matrix exceeded site-specific background values at 7 sample locations, including five in the vicinity of Buildings 218B, 218C and 219G area and two locations in the 228 series magazine area. Lead concentrations at these seven sample locations also exceeded regional background values. The relatively widespread occurrence of lead in the soils and (and as indicated in previous reports) within the buildings correlates well with diverse former operations involving primer materials at the site. The levels and extent of lead in soil may constitute potential exposures via windblown particulate matter and surface runoff migration. Potential exposures from direct contact with the soils or from contamination of groundwater are not considered to be significant.

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[3]There is a possibility that contamination observed at the base of the tunnel vent originated from the adjacent property rather than migrating down the tunnel from the Hanley Area. The vent allows infiltration of surface runoff from the surroundings, which were originally part of SLOP and may contain contaminated media.

Barium concentrations exceeded site-specific background values in soil samples at two locations in the Building 218C area; these concentrations did not exceed regional background values. Chromium concentrations exceeded site-specific background values at one location, north of the Building 218C area; this concentration did not exceed regional background values. Zinc concentrations exceeded site-specific background values at two sample locations, both in the Building 218C area; these concentrations also exceeded regional background values. The occurrence of all of these metals can be related to operations conducted within the Hanley Area. Because of the relatively low maximum values and the low average concentrations found across the site, the levels of these metals in the soil matrix do not appear to pose unacceptable direct exposure threats.

Trace levels (< 1ppm) of polycyclic aromatic hydrocarbons (PAHs), a group of semivolatile organic compounds associated with combustion byproducts and petroleum still bottoms including tar and asphalt, were found in 14 of the soil samples collected. These occurrences may be attributed to the degree of asphalt paving and roofing in the area and perhaps to fill materials used in constructing SLOP, and probably are not indicative of specific PAH sources at the site. The levels observed are less than or equal to commonly-encountered concentrations of these materials in an urban setting, and do not pose a significant threat to human health or the environment.

The toxicity characteristic leaching procedure performed on 4 soil samples indicated that soils would not be considered to be hazardous on the basis of toxicity. Thus, any potential soil-related actions at the site likely would not be hindered by requirements for disposal of hazardous wastes. The TCLP results also show that the leachability of metals from the soil matrix is low, resulting in a low potential for migration of contaminants into groundwater. It is also likely that surface-soil metals contamination has not migrated into the soil column to a significant extent.

Lead and explosives deposits within the buildings and subterranean structures in the Hanley Area may pose health hazards during demolition or renovation activities. Any release of contaminants onto the surface or into the tunnel system during cleanup activities will exacerbate the current exposure potential from these media/migration routes.

6.5.4 PCB Contaminated Transformer and Soil

The high concentration of PCBs found in soil beneath the leaking transformer at bunker 228C posed an unacceptable situation both from the standpoint of regulatory requirements and health risk concerns. In spring of 1991, the transformer was demounted and protectively wrapped. The transformer as well as the underlying contaminated soils will be properly disposed of by the U.S. Army Engineer Center and Fort Leonard Wood. Inspection of the ground under the location of the transformer reveals that the area is asphalt that has become slightly covered with earth. Based on field observations, there is no possibility of groundwater contamination. The transformer fluid has the viscosity of molasses and has not been observed to mix with precipitation or runoff. In fact, the sticky nature of the fluid has caused dust, soil, and vegetation to adhere to it.

6.6 CONCLUSIONS

- ACM are present in most areas within the Hanley Area, and some of these materials should be removed and/or repaired. The ACM problem associated with potential demolition or renovation activities will be particularly severe.
- Surface soils are contaminated with lead at levels of potential concern. Major potential migration pathways relate to surface runoff and windblown dust.

- Water in the tunnels is contaminated with lead and possibly an explosive at levels of potential concern. Although the main source of standing water in the tunnels has been removed, water from infiltration and surface runoff may still carry contamination into the tunnel system.

- Buildings, bunkers, and possibly the tunnel system contains metals and explosive contamination which may have contributed to soil and water contamination. Disrepair of the structures has exacerbated this situation.

- A leaking transformer containing a high concentration of PCBs contaminated a limited amount of soil. The transformer has been demounted and protectively wrapped, and both the transformer and contaminated soils are in the process of being properly disposed of.

7.0 RECOMMENDATIONS

7.1 RECOMMENDATIONS FOR INTERIM AND LONG-TERM CORRECTIVE MEASURES

7.1.1 Asbestos Containing Materials

1. Operations and Maintenance Program

It is recommended that the Army establish an Operations and Maintenance (O&M) program that addresses all areas of the St. Louis Ordnance Plant containing asbestos. This program should address abatement planning and monitoring requirements, and provide information to members of the public who may come in contact with the asbestos at the facility, including any contracted laborers, workmen, military and civilian Army personnel.

OSHA and AHERA regulations require that workmen require notice when performing work on the property if their activities could result in exposure to airborne asbestos fibers. This exposure can occur from work performed on ACM or from work in close proximity to ACM. The bulk sampling for asbestos conducted during the survey confirmed the presence of asbestos in many materials and areas at the site, as described in Section 6.

During the initial phase of the Operations and Maintenance program, trained employees should repair damaged ACM and remove ACM that are not intact or protected from airborne dispersal. Establishment of a contract for this work may require a detailed inventory of all ACM at the facility. All repair work will require respiratory protection (air purifying respirator with HEPA cartridges) for workers and activities should occur in such a manner that fiber generation is minimized. The Operations and Maintenance program should specify periodic air sampling, air sampling following potential episodic releases (e.g., extensive damage to ACM pipe lagging), repair of friable ACM, training of Operations and Maintenance personnel on the health hazards of exposure to airborne asbestos fibers, and training on the use of appropriate respiratory protection. The Operations and Maintenance program should remain in effect until such time that all ACM at the facility has been appropriately remediated.

2. Removal Options

The costs of removing asbestos has increased dramatically over the past few years, which is attributable both to more stringent regulations regarding the removal of asbestos and to increased costs for asbestos liability insurance for abatement companies and asbestos consultants. Asbestos materials costing approximately $0.50 per linear foot to install in the early 1950s now require an average of $30 per linear foot to remove in many regions of the country including St. Louis, Missouri. Because the cost of asbestos abatement is expected to continue increasing, it is recommended that the Army explore options for appropriate management of the asbestos situation in the Hanley Area at SLOP, without the need for complete removal of all ACM.

The first priority in asbestos removal should address aboveground, potentially friable ACM. Removal of all aboveground asbestos with potential friability under normal use conditions is recommended. This includes all deteriorated pipe lagging within buildings and the steam lines that serviced the south bunkers. Asbestos-containing exterior shingles and the red "spark proof" flooring that is in good condition would not require abatement unless the materials are demolished, because these materials lack friability unless disturbed. In locations where the floor has buckled because of moisture infiltration, the material has become friable and easily pulverized by normal finger and hand pressure. Because at least occasional occupancy of Buildings 219A, 219D, and 219G is planned, removal of the floor materials from these areas is recommended.

The most troublesome, friable asbestos in above-ground areas was found in portions of Buildings 218A, 218B, and 218C, and removal of these materials should precede any demolition (if planned) or further deterioration of the structures. Asbestos elsewhere in the Hanley Area, at a minimum, should be monitored for changes in the potential hazards posed.

Abatement of asbestos lagging in the tunnels and basement spaces should be abated by severely controlling access. Entombment of major sections, if not all, of the tunnel system is considered to be the best remedy. This option would guarantee that site access is denied, reducing the potential for accidental exposures both to asbestos and to chemical contamination. Securing all openings with an impenetrable barrier (e.g., concrete wall) and filling the tunnels at vents and other locations will eliminate trespassing and reduce the risk of additional damage to the asbestos pipe lagging. Additional engineering evaluation should precede implementation of an entombment option.

Most of the pipe lagging in basements and tunnels remains in good condition and does not need to be addressed immediately. However, an estimated 620 linear feet of ACM lagging in the basement under bunkers 228M and 228Y (North) require abatement. Much of this ACM is water-damaged and approximately 100 linear feet have fallen from the pipes or is hanging loosely from the pipes.

Three potential options for asbestos abatement actions in the Hanley Area have been considered. For each option, the proposed actions and costs associated with those actions are described in the sections that follow. The first option represents the minimum action level, the second option represents an intermediate action level, and the third option represents complete removal of all known ACM. The cost estimates shown reflect only asbestos-related activities, and the cost of coincidental demolition or other corrective measures are not included. Exhibit 7-1 summarizes the results of the asbestos survey. It should be noted that only 11 of the 16 bays associated with the 227 bunkers were accessible for inspection. For the purposes of this report, it was assumed that the 5 bays that were not inspected were identical to the inspected bays, and estimated amounts and costs for asbestos abatement of these 5 bays are reflected in the various options and associated cost estimates.

3. Option I

For this option, damaged ACM would be repaired or removed when repair is not possible, and non-intact ACM would be removed and disposed of in a Missouri-approved asbestos landfill. An ongoing Operations and Maintenance program would be established to address the existing ACM at the facility. Approximately 15 percent of the total ACM would be repair or removal. As shown in Exhibit 7-1, an estimated 32,350 linear feet of ACM and 55,960 square feet of ACM exists in the Hanley Area. Fifteen percent of this total represents approximately 4,850 linear feet and 8,400 square feet. Using an estimate of $10 per linear foot or square foot for repair or removal when repair is not possible, this option would result in an abatement cost of $132,465. The approximately 600 linear feet of non-intact ACM pipe lagging would cost approximately $12,000 to remove and dispose properly in an approved asbestos landfill. Implementation of an O&M program as outlined above would cost an estimated $15,000 per year. Thus, the total estimated cost for Option I is $144,465 plus $15,000 per year of O&M costs. Cost data are presented in Exhibit 7-2.

4. Option II

For this option, all aboveground ACM with the exception of the exterior transite shingles would be removed, ACM in the tunnels or basements would be repaired, most tunnel and basement entries would be permanently blocked, and those entry points necessary to access for O&M would be secured.

EXHIBIT 7-1

ASBESTOS SURVEY RESULTS

Location	Type of ACM	Estimated Amount
Tunnels	Pipe Lagging	10,500 linear feet (lf)
Basements	Pipe Lagging Thermal Jackets	7,170 lf 360 square feet (sf)
Building Interiors	Pipe Lagging Red Flooring	13,800 lf 50,000 sf
227 Bunkers (11 of 16 Inspected)	Exterior Transite Siding	5,600 sf
Exterior Steam	Pipe Lagging	880 lf

EXHIBIT 7-2

ESTIMATED REMOVAL COSTS FOR ASBESTOS CONTAINING MATERIALS (ACM)[a]

OPTION I

Location	Type of ACM	Estimated Amount	Unit Cost for Repair/Removal	Cost ($)
Tunnels	Pipe Lagging	1,575 lf	$10/lf	15,750
Basements	Pipe Lagging Thermal Jackets	1,075.5 lf 54 sf	$10/lf $10/lf	10,755 540
Building Interiors	Pipe Lagging Red Flooring	2,070 lf 7,500 sf	$10/lf $10/lf	20,700 75,000
227 Bunkers (11 Total)	Exterior Transite Siding	840 sf	$10/sf	8,400
Exterior Steam	Pipe Lagging	132 lf	$10/lf	1,320
Removal of 600 lf of non-intact ACM pipe lagging Total lf: 4,852.5 ≈ 4,850.0 Total sf: 8,131.5 ≈ 8,140				$12,000
			Total Capital Cost	144,465
			O&M Cost (per yr)	15,000

[a] The estimated removal costs include all costs associated with removal of ACM. These services include development of specifications, canvassing of three competent contractors, asbestos removal, transportation, contractor monitoring, air monitoring, and disposal. These costs assume union labor; mobilization/demobilization from St. Louis, Missouri; 1989 pay scales; and $25 per cubic foot for disposal of ACM in an approved Missouri asbestos landfill.

[b] At present only the red flooring in the three warehouse buildings (219A, D, and G) has been sampled. ICF KE has assumed that red flooring throughout the facility is ACM. The cost estimate provided for the flooring also assumes that the flooring can be removed as non-friable ACM without the need for polyethylene enclosures, HEPA air traps, etc.

EXHIBIT 7-3

ESTIMATED REMOVAL COSTS FOR ASBESTOS CONTAINING MATERIALS (ACM)[a]

OPTION II

Location	Type of ACM	Amount to be Repaired or Removed	Cost for Repair/ Removal ($)
Tunnels	Pipe Lagging	525 lf	5,250
Basements	Pipe Lagging	358.5 lf	3,585
Building Interiors	Pipe Lagging Red Flooring[b] (non-friable) or Red Flooring (friable)	13,800 lf 50,000 sf 50,000 sf	415,000 350,000 1,000,000
Exterior Steam	Pipe Lagging	880 lf	30,000
Total Capital Cost (if red flooring is non-friable)			803,835
Total Capital Cost (if red flooring is friable)			1,453,835
O&M Cost (per yr)			15,000

[a] The estimated removal costs include all costs associated with removal of ACM. These services include development of specifications, canvassing of three competent contractors, asbestos removal, transportation, contractor monitoring, air monitoring, and disposal. These costs assume union labor; mobilization/demobilization from St. Louis, Missouri; 1989 pay scales; and $25 per cubic foot for disposal of ACM in an approved Missouri asbestos landfill.

[b] At present only the red flooring in the three warehouse buildings (219A, D, and G) has been sampled. ICF KE has assumed that red flooring throughout the facility is ACM. The cost estimate provided for the flooring also assumes that the flooring can be removed as non-friable ACM without the need for polyethylene enclosures, HEPA air traps, etc. If the ACM can only be removed as a friable material, complete enclosures will be necessary. The cost would then be better estimated at $20 per square foot for a total of $1,000,000 for the removal of 50,000 square feet of red flooring.

The estimated 13,800 linear feet of pipe lagging associated with the buildings and 880 linear feet of exterior steam pipe would cost $445,000 to remove (See Exhibit 7-3). If the bulk of flooring in the buildings is regarded as nonfriable material, then despite the large volume removal should cost on the order of $350,000. If the red flooring is characterized as friable material, removal will cost an estimated $1,000,000. It is estimated that 5 percent of the linear ACM in the tunnels and basements requires repair (880 linear feet) and that none of the thermal jackets require repair. Removal activities when repair is impossible are expected to cost $10 per linear foot and total approximately $8,800. The O&M program should cost $15,000 to maintain. Thus, the total estimated cost of Option II is $803,835 if the red flooring can be removed as a non-friable material or $1,453,835 if the red flooring must be removed as a friable material.

5. Option III

In this option all ACM would be removed, resulting in no need for an O&M program. The major cost variable relates to the red flooring and whether it requires removal as a non-friable or a friable ACM. Total costs were developed for removal of all ACM from the facility based on characterizations of the red flooring as non-friable ACM ($1,426,000) or friable ACM ($2,076,000). Cost data are presented in Exhibit 7-4.

7.1.2 Contaminated Tunnel System Water

Access to the tunnels and basements from the eastern side of Goodfellow Boulevard should be permanently blocked. Further study of effects from past discharges and determination of contaminant sources may also be necessary, as described below.

7.1.3 Surface Soils

No action to specifically address contaminated soils is recommended, except for enhanced restrictions on access to the site. Demolition activities or continuous occupancy of the area will require reassessment of potential exposures and health risks, and specific protocols to minimize on-site and off-site migration and exposures.

7.1.4 Buildings and Structures

At a minimum, buildings should be repaired to minimize inflow of rainfall and resulting runoff (via the surface or tunnels) of contamination. Demolition of former production Buildings 218A, 218B, and 218C and filling/capping of the basement cavities should be considered to further reduce these contaminant sources. Demolition of buildings within the magazines where contamination has been found also should be considered. Long-term planning should address whether the basements of buildings, if properly engineered, could be permitted as an approved on-site asbestos landfill.

The powder wells and associated piping should be characterized to determine whether contamination is present, then excavated and disposed. Depending on the certainty of the sampling, some of these structures might be filled with clay or concrete as an acceptable remedy.

7.1.5 PCB Transformer and Contaminated Soil

The level of PCBs in the soil sample collected from beneath the transformer at bunker 228C (17,900 ppm of PCB-1260) exceeds the action levels described in Subpart G of TSCA regulations (40 CFR 761.120). Abatement actions for this PCB release are currently being carried out in accordance with applicable regulations. The remedial response must be documented and records maintained for 5 years.

EXHIBIT 7-4

ESTIMATED REMOVAL COSTS FOR ASBESTOS CONTAINING MATERIALS (ACM)[a]

OPTION III

Location	Type of ACM	Amount to be Removed	Cost ($)
Tunnels	Pipe Lagging	10,500 lf	350,000
Basements	Pipe Lagging Thermal Jackets	7,170 lf 360 sf	215,000 10,000
Building Interiors	Pipe Lagging Red Flooring[b] (non-friable) or Red Flooring (friable)	13,800 lf 50,000 sf 50,000 sf	415,000 350,000 1,000,000
227 Bunkers (11 total)	Exterior Transite Siding	5,600 sf	56,000
Exterior Steam	Pipe Lagging	880 lf	30,000
Total Capital Cost (if red flooring is non-friable)			1,426,000
Total Capital Cost (if red flooring is friable)			2,076,000

[a] The estimated removal costs include all costs associated with removal of ACM. These services include development of specifications, canvassing of three competent contractors, asbestos removal, transportation, contractor monitoring, air monitoring, and disposal. These costs assume union labor; mobilization/demobilization from St. Louis, Missouri; 1989 pay scales; and $25 per cubic foot for disposal of ACM in an approved Missouri asbestos landfill.

[b] At present only the red flooring in the three warehouse buildings (219A, D, and G) has been sampled. ICF KE has assumed that red flooring throughout the facility is ACM. The cost estimate provided for the flooring also assumes that the flooring can be removed as non-friable ACM without the need for polyethylene enclosures, HEPA air traps, etc. If the ACM can only be removed as a friable material, complete enclosures will be necessary. The cost would then be better estimated at $20 per square foot for a total of $1,000,000 for the removal of 50,000 square feet of red flooring.

7.2 RECOMMENDATIONS FOR FURTHER STUDIES

Based on the limited soil sampling performed in this investigation and in earlier investigative work at the site, the nature of contamination found dictates further study to quantify the need for remedies. Inspection of building perimeters and confirmatory soil sampling to depths of 10-20 feet should be performed. The study area should include: Building 220, Building 218, Building 219E, Buildings 219B, 219C, 219F, 219H, and 219J.

Earlier studies and reports provide inconclusive information on Hanley Area structures and their level of contamination. Structures that remain unclear regarding the extent of contamination and their roles in the overall remedial requirements at the Hanley Area include powder wells, sewer lines, the tunnel system, and many buildings and warehouses. A systematic sampling of building interiors and basements may be necessary, particularly if demolition and disposal is contemplated.

8.0 REFERENCES

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APPENDIX A - CHEMICAL ANALYTICAL DATA

INSTALLATION RESTORATION PROGRAM

CHEMICAL REPORT
Tue Oct 15 11:36:12 1991

For Parameters :

Installation = St. Louis Ordnance Plant
Beginning Date = 01-jun-90
Ending Date = 15-oct-91
Media Type = Chemical Surface Water
Maximum (X, Y) = (737959, 4286588)
Minimum (X, Y) = (737373, 4286000)
Booleans = Y

Site: TUNL SW09

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	26-sep-1990	99	TETR	LT	4.72e+00	UGL
0.0	26-sep-1990	SB01	HG	LT	2.43e-01	UGL
0.0	26-sep-1990	SD09	TL	LT	6.99e+00	UGL
0.0	26-sep-1990	SD20	PB		4.43e+02	UGL
0.0	26-sep-1990	SD21	SE	LT	3.02e+00	UGL
0.0	26-sep-1990	SD22	AS	LT	2.54e+00	UGL
0.0	26-sep-1990	SD23	AG	LT	2.50e-01	UGL
0.0	26-sep-1990	SS10	AL		2.30e+02	UGL
0.0	26-sep-1990	SS10	BA		8.79e+01	UGL
0.0	26-sep-1990	SS10	BE	LT	5.00e+00	UGL
0.0	26-sep-1990	SS10	CA		1.03e+05	UGL
0.0	26-sep-1990	SS10	CD	LT	4.01e+00	UGL
0.0	26-sep-1990	SS10	CO	LT	2.50e+01	UGL
0.0	26-sep-1990	SS10	CR		2.23e+01	UGL
0.0	26-sep-1990	SS10	CU		4.94e+01	UGL
0.0	26-sep-1990	SS10	FE		3.75e+03	UGL
0.0	26-sep-1990	SS10	K		2.04e+03	UGL
0.0	26-sep-1990	SS10	MG		2.83e+04	UGL
0.0	26-sep-1990	SS10	MN		4.10e+02	UGL
0.0	26-sep-1990	SS10	NA		1.47e+05	UGL
0.0	26-sep-1990	SS10	NI	LT	3.43e+01	UGL
0.0	26-sep-1990	SS10	SB	LT	3.80e+01	UGL
0.0	26-sep-1990	SS10	V	LT	1.10e+01	UGL
0.0	26-sep-1990	SS10	ZN		4.81e+02	UGL
0.0	26-sep-1990	TF18	CYN	LT	5.00e+00	UGL
0.0	26-sep-1990	UF03	NC	LT	5.53e+02	UGL
0.0	26-sep-1990	UM18	124TCB	LT	1.80e+00	UGL
0.0	26-sep-1990	UM18	12DCLB	LT	1.70e+00	UGL
0.0	26-sep-1990	UM18	12DPH	ND	2.00e+00	UGL
0.0	26-sep-1990	UM18	13DCLB	LT	1.70e+00	UGL
0.0	26-sep-1990	UM18	14DCLB	LT	1.70e+00	UGL
0.0	26-sep-1990	UM18	245TCP	LT	5.20e+00	UGL
0.0	26-sep-1990	UM18	246TCP	LT	4.20e+00	UGL
0.0	26-sep-1990	UM18	24DCLP	LT	2.90e+00	UGL
0.0	26-sep-1990	UM18	24DMPN	LT	5.80e+00	UGL
0.0	26-sep-1990	UM18	24DNP	LT	2.10e+01	UGL
0.0	26-sep-1990	UM18	24DNT	LT	4.50e+00	UGL
0.0	26-sep-1990	UM18	26DNT	LT	7.90e-01	UGL

Analytical Results for Chemical Surface Water
From: 01-jun-90 To: 15-oct-91

Site: TUNL SW09 (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	26-sep-1990	UM18	DNBP	LT	3.70e+00	UGL
0.0	26-sep-1990	UM18	DNOP	LT	1.50e+01	UGL
0.0	26-sep-1990	UM18	ENDRN	ND	7.60e+00	UGL
0.0	26-sep-1990	UM18	ENDRNA	ND	8.00e+00	UGL
0.0	26-sep-1990	UM18	ENDRNK	ND	8.00e+00	UGL
0.0	26-sep-1990	UM18	ESFSO4	ND	9.20e+00	UGL
0.0	26-sep-1990	UM18	FANT	LT	3.30e+00	UGL
0.0	26-sep-1990	UM18	FLRENE	LT	3.70e+00	UGL
0.0	26-sep-1990	UM18	GCLDAN	ND	5.10e+00	UGL
0.0	26-sep-1990	UM18	HCBD	LT	3.40e+00	UGL
0.0	26-sep-1990	UM18	HPCL	ND	2.00e+00	UGL
0.0	26-sep-1990	UM18	HPCLE	ND	5.00e+00	UGL
0.0	26-sep-1990	UM18	ICDPYR	LT	8.60e+00	UGL
0.0	26-sep-1990	UM18	ISOPHR	LT	4.80e+00	UGL
0.0	26-sep-1990	UM18	LIN	ND	4.00e+00	UGL
0.0	26-sep-1990	UM18	MEXCLR	ND	5.10e+00	UGL
0.0	26-sep-1990	UM18	NAP	LT	5.00e-01	UGL
0.0	26-sep-1990	UM18	NB	LT	5.00e-01	UGL
0.0	26-sep-1990	UM18	NNDMEA	ND	2.00e+00	UGL
0.0	26-sep-1990	UM18	NNDNPA	LT	4.40e+00	UGL
0.0	26-sep-1990	UM18	NNDPA	LT	3.00e+00	UGL
0.0	26-sep-1990	UM18	PCB016	ND	2.10e+01	UGL
0.0	26-sep-1990	UM18	PCB221	ND	2.10e+01	UGL
0.0	26-sep-1990	UM18	PCB232	ND	2.10e+01	UGL
0.0	26-sep-1990	UM18	PCB242	ND	3.00e+01	UGL
0.0	26-sep-1990	UM18	PCB248	ND	3.00e+01	UGL
0.0	26-sep-1990	UM18	PCB254	ND	3.60e+01	UGL
0.0	26-sep-1990	UM18	PCB260	ND	3.60e+01	UGL
0.0	26-sep-1990	UM18	PCP	LT	1.80e+01	UGL
0.0	26-sep-1990	UM18	PHANTR	LT	5.00e-01	UGL
0.0	26-sep-1990	UM18	PHENOL	LT	9.20e+00	UGL
0.0	26-sep-1990	UM18	PPDDD	ND	4.00e+00	UGL
0.0	26-sep-1990	UM18	PPDDE	ND	4.70e+00	UGL
0.0	26-sep-1990	UM18	PPDDT	ND	9.20e+00	UGL
0.0	26-sep-1990	UM18	PYR	LT	2.80e+00	UGL
0.0	26-sep-1990	UM18	TXPHEN	ND	3.60e+01	UGL
0.0	26-sep-1990	UM20	111TCE	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	112TCE	LT	1.20e+00	UGL
0.0	26-sep-1990	UM20	11DCE	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	11DCLE	LT	6.80e-01	UGL
0.0	26-sep-1990	UM20	12DCE	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	12DCLE	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	12DCLP	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	2CLEVE	LT	7.10e-01	UGL
0.0	26-sep-1990	UM20	ACET	LT	1.30e+01	UGL
0.0	26-sep-1990	UM20	ACROLN	ND	1.00e+02	UGL
0.0	26-sep-1990	UM20	ACRYLO	ND	1.00e+02	UGL

Site: TUNL SW09 (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	26-sep-1990	UM20	BRDCLM	LT	5.90e-01	UGL
0.0	26-sep-1990	UM20	C13DCP	LT	5.80e-01	UGL
0.0	26-sep-1990	UM20	C2AVE	LT	8.30e+00	UGL
0.0	26-sep-1990	UM20	C2H3CL	LT	2.60e+00	UGL
0.0	26-sep-1990	UM20	C2H5CL	LT	1.90e+00	UGL
0.0	26-sep-1990	UM20	C6H6	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	CCL3F	LT	1.40e+00	UGL
0.0	26-sep-1990	UM20	CCL4	LT	5.80e-01	UGL
0.0	26-sep-1990	UM20	CH2CL2	LT	2.30e+00	UGL
0.0	26-sep-1990	UM20	CH3BR	LT	5.80e+00	UGL
0.0	26-sep-1990	UM20	CH3CL	LT	3.20e+00	UGL
0.0	26-sep-1990	UM20	CHBR3	LT	2.60e+00	UGL
0.0	26-sep-1990	UM20	CHCL3	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	CL2BZ	ND	1.00e+01	UGL
0.0	26-sep-1990	UM20	CLC6H5	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	CS2	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	DBRCLM	LT	6.70e-01	UGL
0.0	26-sep-1990	UM20	ETC6H5	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	MEC6H5	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	MEK	LT	6.40e+00	UGL
0.0	26-sep-1990	UM20	MIBK	LT	3.00e+00	UGL
0.0	26-sep-1990	UM20	MNBK	LT	3.60e+00	UGL
0.0	26-sep-1990	UM20	STYR	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	T13DCP	LT	7.00e-01	UGL
0.0	26-sep-1990	UM20	TCLEA	LT	5.10e-01	UGL
0.0	26-sep-1990	UM20	TCLEE	LT	1.60e+00	UGL
0.0	26-sep-1990	UM20	TRCLE	LT	5.00e-01	UGL
0.0	26-sep-1990	UM20	XYLEN	LT	8.40e-01	UGL
0.0	26-sep-1990	UW14	135TNB	LT	6.26e-01	UGL
0.0	26-sep-1990	UW14	13DNB	LT	5.19e-01	UGL
0.0	26-sep-1990	UW14	246TNT	LT	5.88e-01	UGL
0.0	26-sep-1990	UW14	24DNT	LT	6.12e-01	UGL
0.0	26-sep-1990	UW14	26DNT	LT	1.15e+00	UGL
0.0	26-sep-1990	UW14	HMX	LT	1.65e+00	UGL
0.0	26-sep-1990	UW14	RDX	LT	2.11e+00	UGL
0.0	26-sep-1990	UW14	TETRYL	LT	5.56e-01	UGL
0.0	26-sep-1990	UW19	PETN		2.00e+01	UGL

Analytical Results for Chemical Surface Water
From: 01-jun-90 To: 15-oct-91

Site: TUNL SW10 (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	UM18	2CLP	LT	9.90e-01	UGL
0.0	25-sep-1990	UM18	2CNAP	LT	5.00e-01	UGL
0.0	25-sep-1990	UM18	2MNAP	LT	1.70e+00	UGL
0.0	25-sep-1990	UM18	2MP	LT	3.90e+00	UGL
0.0	25-sep-1990	UM18	2NANIL	LT	4.30e+00	UGL
0.0	25-sep-1990	UM18	2NP	LT	3.70e+00	UGL
0.0	25-sep-1990	UM18	33DCBD	LT	1.20e+01	UGL
0.0	25-sep-1990	UM18	3NANIL	LT	4.90e+00	UGL
0.0	25-sep-1990	UM18	46DN2C	LT	1.70e+01	UGL
0.0	25-sep-1990	UM18	4BRPPE	LT	4.20e+00	UGL
0.0	25-sep-1990	UM18	4CANIL	LT	7.30e+00	UGL
0.0	25-sep-1990	UM18	4CL3C	LT	4.00e+00	UGL
0.0	25-sep-1990	UM18	4CLPPE	LT	5.10e+00	UGL
0.0	25-sep-1990	UM18	4MP	LT	5.20e-01	UGL
0.0	25-sep-1990	UM18	4NANIL	LT	5.20e+00	UGL
0.0	25-sep-1990	UM18	4NP	LT	1.20e+01	UGL
0.0	25-sep-1990	UM18	ABHC	ND	4.00e+00	UGL
0.0	25-sep-1990	UM18	ACLDAN	ND	5.10e+00	UGL
0.0	25-sep-1990	UM18	AENSLF	ND	9.20e+00	UGL
0.0	25-sep-1990	UM18	ALDRN	ND	4.70e+00	UGL
0.0	25-sep-1990	UM18	ANAPNE	LT	1.70e+00	UGL
0.0	25-sep-1990	UM18	ANAPYL	LT	5.00e-01	UGL
0.0	25-sep-1990	UM18	ANTRC	LT	5.00e-01	UGL
0.0	25-sep-1990	UM18	B2CEXM	LT	1.50e+00	UGL
0.0	25-sep-1990	UM18	B2CIPE	LT	5.30e+00	UGL
0.0	25-sep-1990	UM18	B2CLEE	LT	1.90e+00	UGL
0.0	25-sep-1990	UM18	B2EHP	LT	4.80e+00	UGL
0.0	25-sep-1990	UM18	BAANTR	LT	1.60e+00	UGL
0.0	25-sep-1990	UM18	BAPYR	LT	4.70e+00	UGL
0.0	25-sep-1990	UM18	BBFANT	LT	5.40e+00	UGL
0.0	25-sep-1990	UM18	BBHC	ND	4.00e+00	UGL
0.0	25-sep-1990	UM18	BBZP	LT	3.40e+00	UGL
0.0	25-sep-1990	UM18	BENSLF	ND	9.20e+00	UGL
0.0	25-sep-1990	UM18	BENZID	ND	1.00e+01	UGL
0.0	25-sep-1990	UM18	BENZOA	LT	1.30e+01	UGL
0.0	25-sep-1990	UM18	BGHIPY	LT	6.10e+00	UGL
0.0	25-sep-1990	UM18	BKFANT	LT	8.70e-01	UGL
0.0	25-sep-1990	UM18	BZALC	LT	7.20e-01	UGL
0.0	25-sep-1990	UM18	CHRY	LT	2.40e+00	UGL
0.0	25-sep-1990	UM18	CL6BZ	LT	1.60e+00	UGL
0.0	25-sep-1990	UM18	CL6CP	LT	8.60e+00	UGL
0.0	25-sep-1990	UM18	CL6ET	LT	1.50e+00	UGL
0.0	25-sep-1990	UM18	DBAHA	LT	6.50e+00	UGL
0.0	25-sep-1990	UM18	DBHC	ND	4.00e+00	UGL
0.0	25-sep-1990	UM18	DBZFUR	LT	1.70e+00	UGL
0.0	25-sep-1990	UM18	DEP	LT	2.00e+00	UGL
0.0	25-sep-1990	UM18	DLDRN	ND	4.70e+00	UGL
0.0	25-sep-1990	UM18	DMP	LT	1.50e+00	UGL

Analytical Results for Chemical Surface Water
From: 01-jun-90 To: 15-oct-91

Site: TUNL SW10 (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	UM18	DNBP	LT	3.70e+00	UGL
0.0	25-sep-1990	UM18	DNOP	LT	1.50e+01	UGL
0.0	25-sep-1990	UM18	ENDRN	ND	7.60e+00	UGL
0.0	25-sep-1990	UM18	ENDRNA	ND	8.00e+00	UGL
0.0	25-sep-1990	UM18	ENDRNK	ND	8.00e+00	UGL
0.0	25-sep-1990	UM18	ESFSO4	ND	9.20e+00	UGL
0.0	25-sep-1990	UM18	FANT	LT	3.30e+00	UGL
0.0	25-sep-1990	UM18	FLRENE	LT	3.70e+00	UGL
0.0	25-sep-1990	UM18	GCLDAN	ND	5.10e+00	UGL
0.0	25-sep-1990	UM18	HCBD	LT	3.40e+00	UGL
0.0	25-sep-1990	UM18	HPCL	ND	2.00e+00	UGL
0.0	25-sep-1990	UM18	HPCLE	ND	5.00e+00	UGL
0.0	25-sep-1990	UM18	ICDPYR	LT	8.60e+00	UGL
0.0	25-sep-1990	UM18	ISOPHR	LT	4.80e+00	UGL
0.0	25-sep-1990	UM18	LIN	ND	4.00e+00	UGL
0.0	25-sep-1990	UM18	MEXCLR	ND	5.10e+00	UGL
0.0	25-sep-1990	UM18	NAP	LT	5.00e-01	UGL
0.0	25-sep-1990	UM18	NB	LT	5.00e-01	UGL
0.0	25-sep-1990	UM18	NNDMEA	ND	2.00e+00	UGL
0.0	25-sep-1990	UM18	NNDNPA	LT	4.40e+00	UGL
0.0	25-sep-1990	UM18	NNDPA	LT	3.00e+00	UGL
0.0	25-sep-1990	UM18	PCB016	ND	2.10e+01	UGL
0.0	25-sep-1990	UM18	PCB221	ND	2.10e+01	UGL
0.0	25-sep-1990	UM18	PCB232	ND	2.10e+01	UGL
0.0	25-sep-1990	UM18	PCB242	ND	3.00e+01	UGL
0.0	25-sep-1990	UM18	PCB248	ND	3.00e+01	UGL
0.0	25-sep-1990	UM18	PCB254	ND	3.60e+01	UGL
0.0	25-sep-1990	UM18	PCB260	ND	3.60e+01	UGL
0.0	25-sep-1990	UM18	PCP	LT	1.80e+01	UGL
0.0	25-sep-1990	UM18	PHANTR	LT	5.00e-01	UGL
0.0	25-sep-1990	UM18	PHENOL	LT	9.20e+00	UGL
0.0	25-sep-1990	UM18	PPDDD	ND	4.00e+00	UGL
0.0	25-sep-1990	UM18	PPDDE	ND	4.70e+00	UGL
0.0	25-sep-1990	UM18	PPDDT	ND	9.20e+00	UGL
0.0	25-sep-1990	UM18	PYR	LT	2.80e+00	UGL
0.0	25-sep-1990	UM18	TXPHEN	ND	3.60e+01	UGL
0.0	25-sep-1990	UM18	UNK556		2.00e+01	UGL
0.0	25-sep-1990	UM20	111TCE	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	112TCE	LT	1.20e+00	UGL
0.0	25-sep-1990	UM20	11DCE	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	11DCLE	LT	6.80e-01	UGL
0.0	25-sep-1990	UM20	12DCE	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	12DCLE	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	12DCLP	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	2CLEVE	LT	7.10e-01	UGL
0.0	25-sep-1990	UM20	ACET	LT	1.30e+01	UGL
0.0	25-sep-1990	UM20	ACROLN	ND	1.00e+02	UGL

Site: TUNL SW10 (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	UM20	ACRYLO	ND	1.00e+02	UGL
0.0	25-sep-1990	UM20	BRDCLM	LT	5.90e-01	UGL
0.0	25-sep-1990	UM20	C13DCP	LT	5.80e-01	UGL
0.0	25-sep-1990	UM20	C2AVE	LT	8.30e+00	UGL
0.0	25-sep-1990	UM20	C2H3CL	LT	2.60e+00	UGL
0.0	25-sep-1990	UM20	C2H5CL	LT	1.90e+00	UGL
0.0	25-sep-1990	UM20	C6H6	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	CCL3F	LT	1.40e+00	UGL
0.0	25-sep-1990	UM20	CCL4	LT	5.80e-01	UGL
0.0	25-sep-1990	UM20	CH2CL2	LT	2.30e+00	UGL
0.0	25-sep-1990	UM20	CH3BR	LT	5.80e+00	UGL
0.0	25-sep-1990	UM20	CH3CL	LT	3.20e+00	UGL
0.0	25-sep-1990	UM20	CHBR3	LT	2.60e+00	UGL
0.0	25-sep-1990	UM20	CHCL3	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	CL2BZ	ND	1.00e+01	UGL
0.0	25-sep-1990	UM20	CLC6H5	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	CS2	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	DBRCLM	LT	6.70e-01	UGL
0.0	25-sep-1990	UM20	ETC6H5	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	MEC6H5	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	MEK	LT	6.40e+00	UGL
0.0	25-sep-1990	UM20	MIBK	LT	3.00e+00	UGL
0.0	25-sep-1990	UM20	MNBK	LT	3.60e+00	UGL
0.0	25-sep-1990	UM20	STYR	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	T13DCP	LT	7.00e-01	UGL
0.0	25-sep-1990	UM20	TCLEA	LT	5.10e-01	UGL
0.0	25-sep-1990	UM20	TCLEE	LT	1.60e+00	UGL
0.0	25-sep-1990	UM20	TRCLE	LT	5.00e-01	UGL
0.0	25-sep-1990	UM20	XYLEN	LT	8.40e-01	UGL
0.0	25-sep-1990	UW14	135TNB	LT	6.26e-01	UGL
0.0	25-sep-1990	UW14	13DNB	LT	5.19e-01	UGL
0.0	25-sep-1990	UW14	246TNT	LT	5.88e-01	UGL
0.0	25-sep-1990	UW14	24DNT	LT	6.12e-01	UGL
0.0	25-sep-1990	UW14	26DNT	LT	1.15e+00	UGL
0.0	25-sep-1990	UW14	HMX	LT	1.65e+00	UGL
0.0	25-sep-1990	UW14	RDX	LT	2.11e+00	UGL
0.0	25-sep-1990	UW14	TETRYL	LT	5.56e-01	UGL
0.0	25-sep-1990	UW19	PETN	LT	2.00e+01	UGL

Report completed normally.

INSTALLATION RESTORATION PROGRAM

CHEMICAL REPORT
Tue Oct 15 11:56:28 1991

For Parameters :

Installation = St. Louis Ordnance Plant
Beginning Date = 01-jun-90
Ending Date = 15-oct-91
Media Type = Chemical Soil
Maximum (X, Y) = (737959, 4286588)
Minimum (X, Y) = (737373, 4286000)
Booleans = Y

Site: PLUG SS40A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		1.04e+04	UGG
0.0	24-sep-1990	JS11	BA		2.04e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	24-sep-1990	JS11	CA		2.25e+04	UGG
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.89e+04	UGG
0.0	24-sep-1990	JS11	K		1.12e+03	UGG
0.0	24-sep-1990	JS11	MG		6.97e+03	UGG
0.0	24-sep-1990	JS11	MN		7.24e+02	UGG
0.0	24-sep-1990	JS11	NA		5.81e+02	UGG
0.0	24-sep-1990	JS11	NI		2.90e+01	UGG
0.0	24-sep-1990	JS11	PB		3.93e+01	UGG
0.0	24-sep-1990	JS11	ZN		1.42e+02	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS40B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	24-sep-1990	JS11	AL		1.26e+04	UGG
1.0	24-sep-1990	JS11	BA		1.84e+02	UGG
1.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	24-sep-1990	JS11	CA		6.28e+03	UGG

Site: PLUG SS40B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	24-sep-1990	JS11	CR		2.58e+01	UGG
1.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	24-sep-1990	JS11	FE		1.98e+04	UGG
1.0	24-sep-1990	JS11	K		1.24e+03	UGG
1.0	24-sep-1990	JS11	MG		5.40e+03	UGG
1.0	24-sep-1990	JS11	MN		7.19e+02	UGG
1.0	24-sep-1990	JS11	NA		5.83e+02	UGG
1.0	24-sep-1990	JS11	NI		3.01e+01	UGG
1.0	24-sep-1990	JS11	PB		1.03e+01	UGG
1.0	24-sep-1990	JS11	ZN		9.26e+01	UGG
1.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS41A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JD15	SE	LT	2.50e-01	UGG
0.0	24-sep-1990	JD19	AS		9.00e+00	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		6.95e+03	UGG
0.0	24-sep-1990	JS11	BA		1.20e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	24-sep-1990	JS11	CA		2.23e+05	UGG
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CO	LT	1.50e+01	UGG
0.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.11e+04	UGG
0.0	24-sep-1990	JS11	K		1.07e+03	UGG

Site: PLUG SS41A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	JS11	MG		1.55e+04	UGG
0.0	24-sep-1990	JS11	MN		6.02e+02	UGG
0.0	24-sep-1990	JS11	NA		5.08e+02	UGG
0.0	24-sep-1990	JS11	NI	LT	1.26e+01	UGG
0.0	24-sep-1990	JS11	PB		1.14e+02	UGG
0.0	24-sep-1990	JS11	SB	LT	3.80e+00	UGG
0.0	24-sep-1990	JS11	TL	LT	3.13e+01	UGG
0.0	24-sep-1990	JS11	V		3.34e+01	UGG
0.0	24-sep-1990	JS11	ZN		1.19e+02	UGG
0.0	24-sep-1990	KY01	CYN	LT	9.20e-01	UGG
0.0	24-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
0.0	24-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
0.0	24-sep-1990	LM18	12DPH	ND	1.40e-01	UGG
0.0	24-sep-1990	LM18	12EPCH		7.37e-01	UGG
0.0	24-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
0.0	24-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
0.0	24-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
0.0	24-sep-1990	LM18	246TCP	LT	1.70e-01	UGG
0.0	24-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
0.0	24-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
0.0	24-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
0.0	24-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
0.0	24-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
0.0	24-sep-1990	LM18	2CHE1O		2.11e-01	UGG
0.0	24-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
0.0	24-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
0.0	24-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
0.0	24-sep-1990	LM18	2MP	LT	2.90e-02	UGG
0.0	24-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
0.0	24-sep-1990	LM18	2NP	LT	1.40e-01	UGG
0.0	24-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
0.0	24-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
0.0	24-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
0.0	24-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
0.0	24-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG
0.0	24-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	4MP	LT	2.40e-01	UGG
0.0	24-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
0.0	24-sep-1990	LM18	4NP	LT	1.40e+00	UGG
0.0	24-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
0.0	24-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
0.0	24-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
0.0	24-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
0.0	24-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG
0.0	24-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG

Site: PLUG SS41A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	LM18	ANTRC	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
0.0	24-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
0.0	24-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
0.0	24-sep-1990	LM18	BAANTR	LT	1.70e-01	UGG
0.0	24-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG
0.0	24-sep-1990	LM18	BBFANT	LT	2.10e-01	UGG
0.0	24-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
0.0	24-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
0.0	24-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
0.0	24-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
0.0	24-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
0.0	24-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG
0.0	24-sep-1990	LM18	BKFANT	LT	6.60e-02	UGG
0.0	24-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
0.0	24-sep-1990	LM18	CHRY	LT	1.20e-01	UGG
0.0	24-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG
0.0	24-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
0.0	24-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
0.0	24-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
0.0	24-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
0.0	24-sep-1990	LM18	DEP	LT	2.40e-01	UGG
0.0	24-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
0.0	24-sep-1990	LM18	DMP	LT	1.70e-01	UGG
0.0	24-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
0.0	24-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
0.0	24-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
0.0	24-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
0.0	24-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
0.0	24-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
0.0	24-sep-1990	LM18	FANT		1.10e-01	UGG
0.0	24-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
0.0	24-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
0.0	24-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
0.0	24-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG
0.0	24-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
0.0	24-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	LIN	ND	2.70e-01	UGG
0.0	24-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
0.0	24-sep-1990	LM18	NAP	LT	3.70e-02	UGG
0.0	24-sep-1990	LM18	NB	LT	4.50e-02	UGG
0.0	24-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
0.0	24-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
0.0	24-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG
0.0	24-sep-1990	LM18	PCB016	ND	1.40e+00	UGG

Site: PLUG SS41A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
0.0	24-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
0.0	24-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
0.0	24-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
0.0	24-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
0.0	24-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
0.0	24-sep-1990	LM18	PCP	LT	1.30e+00	UGG
0.0	24-sep-1990	LM18	PHANTR	LT	3.30e-02	UGG
0.0	24-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
0.0	24-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
0.0	24-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
0.0	24-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
0.0	24-sep-1990	LM18	PYR		9.97e-02	UGG
0.0	24-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG
0.0	24-sep-1990	LM18	UNK672		4.21e-01	UGG
0.0	24-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
0.0	24-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
0.0	24-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
0.0	24-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
0.0	24-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
0.0	24-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
0.0	24-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
0.0	24-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
0.0	24-sep-1990	LM19	ACET	LT	1.70e-02	UGG
0.0	24-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
0.0	24-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
0.0	24-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
0.0	24-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
0.0	24-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
0.0	24-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
0.0	24-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
0.0	24-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
0.0	24-sep-1990	LM19	CCL3F	LT	5.90e-03	UGG
0.0	24-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
0.0	24-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
0.0	24-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
0.0	24-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
0.0	24-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
0.0	24-sep-1990	LM19	CHCL3		1.64e-03	UGG
0.0	24-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
0.0	24-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
0.0	24-sep-1990	LM19	CS2	LT	4.40e-03	UGG
0.0	24-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
0.0	24-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
0.0	24-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
0.0	24-sep-1990	LM19	MEK	LT	7.00e-02	UGG
0.0	24-sep-1990	LM19	MIBK	LT	2.70e-02	UGG

Site: PLUG SS41A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
0.0	24-sep-1990	LM19	STYR	LT	2.60e-03	UGG
0.0	24-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
0.0	24-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
0.0	24-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
0.0	24-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
0.0	24-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG
0.0	08-oct-1990	SB01	HG	LT	2.43e-01	UGL
0.0	08-oct-1990	SD21	SE	LT	3.02e+00	UGL
0.0	08-oct-1990	SD22	AS	LT	2.54e+00	UGL
0.0	08-oct-1990	SS10	AG	LT	4.60e+00	UGL
0.0	08-oct-1990	SS10	BA		7.81e+02	UGL
0.0	08-oct-1990	SS10	CD		4.78e+00	UGL
0.0	08-oct-1990	SS10	CR	LT	6.02e+00	UGL
0.0	08-oct-1990	SS10	PB	LT	1.86e+01	UGL
0.0	08-oct-1990	UH14	245TP	LT	1.70e-01	UGL
0.0	08-oct-1990	UH14	24D	LT	8.02e-01	UGL
0.0	08-oct-1990	UM18	14DCLB	LT	1.70e+00	UGL
0.0	08-oct-1990	UM18	245TCP	LT	5.20e+00	UGL
0.0	08-oct-1990	UM18	246TCP	LT	4.20e+00	UGL
0.0	08-oct-1990	UM18	24DNT	LT	4.50e+00	UGL
0.0	08-oct-1990	UM18	2MP	LT	3.90e+00	UGL
0.0	08-oct-1990	UM18	3MP	ND	2.00e+00	UGL
0.0	08-oct-1990	UM18	4MP	LT	5.20e-01	UGL
0.0	08-oct-1990	UM18	ACLDAN	ND	5.10e+00	UGL
0.0	08-oct-1990	UM18	CL6BZ	LT	1.60e+00	UGL
0.0	08-oct-1990	UM18	CL6ET	LT	1.50e+00	UGL
0.0	08-oct-1990	UM18	ENDRN	ND	7.60e+00	UGL
0.0	08-oct-1990	UM18	GCLDAN	ND	5.10e+00	UGL
0.0	08-oct-1990	UM18	HCBD	LT	3.40e+00	UGL
0.0	08-oct-1990	UM18	HPCL	ND	2.00e+00	UGL
0.0	08-oct-1990	UM18	HPCLE	ND	5.00e+00	UGL

Site: PLUG SS41A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	08-oct-1990	UM18	LIN	ND	4.00e+00	UGL
0.0	08-oct-1990	UM18	MEXCLR	ND	5.10e+00	UGL
0.0	08-oct-1990	UM18	NB	LT	5.00e-01	UGL
0.0	08-oct-1990	UM18	PCP	LT	1.80e+01	UGL
0.0	08-oct-1990	UM18	PYR	ND	1.50e+00	UGL
0.0	08-oct-1990	UM18	TXPHEN	ND	3.60e+01	UGL
0.0	08-oct-1990	UM20	11DCE	LT	5.00e-01	UGL
0.0	08-oct-1990	UM20	12DCLE	LT	5.00e-01	UGL
0.0	08-oct-1990	UM20	C2H3CL	LT	2.60e+00	UGL
0.0	08-oct-1990	UM20	C6H6	LT	5.00e-01	UGL
0.0	08-oct-1990	UM20	CCL4	LT	5.80e-01	UGL
0.0	08-oct-1990	UM20	CHCL3	LT	5.00e-01	UGL
0.0	08-oct-1990	UM20	CLC6H5	LT	5.00e-01	UGL
0.0	08-oct-1990	UM20	MEK	LT	6.40e+00	UGL
0.0	08-oct-1990	UM20	TCLEE	LT	1.60e+00	UGL
0.0	08-oct-1990	UM20	TRCLE	LT	5.00e-01	UGL

Site: PLUG SS42A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		1.16e+04	UGG
0.0	24-sep-1990	JS11	BA		1.94e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	24-sep-1990	JS11	CA		3.03e+04	UGG
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.79e+04	UGG
0.0	24-sep-1990	JS11	K		1.42e+03	UGG
0.0	24-sep-1990	JS11	MG		6.76e+03	UGG
0.0	24-sep-1990	JS11	MN		7.07e+02	UGG
0.0	24-sep-1990	JS11	NA		4.75e+02	UGG
0.0	24-sep-1990	JS11	NI		2.71e+01	UGG
0.0	24-sep-1990	JS11	PB		7.44e+01	UGG
0.0	24-sep-1990	JS11	ZN		1.32e+02	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG

Site: PLUG SS42A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS43A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		1.29e+04	UGG
0.0	24-sep-1990	JS11	BA		4.09e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	24-sep-1990	JS11	CA		1.46e+04	UGG
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CR		2.46e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.91e+04	UGG
0.0	24-sep-1990	JS11	K		1.55e+03	UGG
0.0	24-sep-1990	JS11	MG		5.26e+03	UGG
0.0	24-sep-1990	JS11	MN		1.04e+03	UGG
0.0	24-sep-1990	JS11	NA		4.84e+02	UGG
0.0	24-sep-1990	JS11	NI		2.84e+01	UGG
0.0	24-sep-1990	JS11	PB		9.87e+01	UGG
0.0	24-sep-1990	JS11	ZN		1.97e+02	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS43B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	24-sep-1990	JS11	AL		1.33e+04	UGG
1.0	24-sep-1990	JS11	BA		2.24e+02	UGG
1.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	24-sep-1990	JS11	CA		5.41e+04	UGG
1.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	24-sep-1990	JS11	FE		1.81e+04	UGG
1.0	24-sep-1990	JS11	K		1.54e+03	UGG
1.0	24-sep-1990	JS11	MG		6.86e+03	UGG
1.0	24-sep-1990	JS11	MN		7.54e+02	UGG
1.0	24-sep-1990	JS11	NA		3.20e+02	UGG
1.0	24-sep-1990	JS11	NI		2.68e+01	UGG
1.0	24-sep-1990	JS11	PB		3.39e+01	UGG
1.0	24-sep-1990	JS11	ZN		1.05e+02	UGG
1.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS44A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.05e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		8.69e+03	UGG
0.0	24-sep-1990	JS11	BA		2.49e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	24-sep-1990	JS11	CA		9.29e+03	UGG

Site: PLUG SS44A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.54e+04	UGG
0.0	24-sep-1990	JS11	K		1.09e+03	UGG
0.0	24-sep-1990	JS11	MG		6.01e+03	UGG
0.0	24-sep-1990	JS11	MN		1.06e+03	UGG
0.0	24-sep-1990	JS11	NA		5.15e+02	UGG
0.0	24-sep-1990	JS11	NI		2.93e+01	UGG
0.0	24-sep-1990	JS11	PB		2.71e+01	UGG
0.0	24-sep-1990	JS11	ZN		1.04e+02	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS44B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	24-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	24-sep-1990	JD19	AS		9.32e+00	UGG
1.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	24-sep-1990	JS11	AL		1.06e+04	UGG
1.0	24-sep-1990	JS11	BA		2.49e+02	UGG
1.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	24-sep-1990	JS11	CA		1.38e+04	UGG
1.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	24-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	24-sep-1990	JS11	CR		5.78e+01	UGG
1.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	24-sep-1990	JS11	FE		1.75e+04	UGG
1.0	24-sep-1990	JS11	K		1.10e+03	UGG

Site: PLUG SS44B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	JS11	MG		6.72e+03	UGG
1.0	24-sep-1990	JS11	MN		8.98e+02	UGG
1.0	24-sep-1990	JS11	NA		6.78e+02	UGG
1.0	24-sep-1990	JS11	NI		3.22e+01	UGG
1.0	24-sep-1990	JS11	PB		2.85e+01	UGG
1.0	24-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	24-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	24-sep-1990	JS11	V		4.40e+01	UGG
1.0	24-sep-1990	JS11	ZN		9.83e+01	UGG
1.0	24-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	24-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
1.0	24-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
1.0	24-sep-1990	LM18	12DPH	ND	1.40e-01	UGG
1.0	24-sep-1990	LM18	12EPCH		1.02e+00	UGG
1.0	24-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
1.0	24-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
1.0	24-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
1.0	24-sep-1990	LM18	246TCP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
1.0	24-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
1.0	24-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
1.0	24-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
1.0	24-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
1.0	24-sep-1990	LM18	2CHE1L		2.27e-01	UGG
1.0	24-sep-1990	LM18	2CHE1O		3.41e-01	UGG
1.0	24-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
1.0	24-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
1.0	24-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
1.0	24-sep-1990	LM18	2MP	LT	2.90e-02	UGG
1.0	24-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
1.0	24-sep-1990	LM18	2NP	LT	1.40e-01	UGG
1.0	24-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
1.0	24-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
1.0	24-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
1.0	24-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
1.0	24-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG
1.0	24-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	4MP	LT	2.40e-01	UGG
1.0	24-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
1.0	24-sep-1990	LM18	4NP	LT	1.40e+00	UGG
1.0	24-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG

Site: PLUG SS44B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	ANTRC	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
1.0	24-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
1.0	24-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
1.0	24-sep-1990	LM18	BAANTR	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG
1.0	24-sep-1990	LM18	BBFANT	LT	2.10e-01	UGG
1.0	24-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
1.0	24-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
1.0	24-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG
1.0	24-sep-1990	LM18	BKFANT	LT	6.60e-02	UGG
1.0	24-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	CHRY	LT	1.20e-01	UGG
1.0	24-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG
1.0	24-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
1.0	24-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
1.0	24-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
1.0	24-sep-1990	LM18	DEP	LT	2.40e-01	UGG
1.0	24-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	DMP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
1.0	24-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
1.0	24-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
1.0	24-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
1.0	24-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	FANT		1.05e-01	UGG
1.0	24-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
1.0	24-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
1.0	24-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
1.0	24-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	LIN	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	NAP	LT	3.70e-02	UGG
1.0	24-sep-1990	LM18	NB	LT	4.50e-02	UGG
1.0	24-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
1.0	24-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
1.0	24-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG

Site: PLUG SS44B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM18	PCB016	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
1.0	24-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
1.0	24-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
1.0	24-sep-1990	LM18	PCP	LT	1.30e+00	UGG
1.0	24-sep-1990	LM18	PHANTR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
1.0	24-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	PYR		9.40e-02	UGG
1.0	24-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG
1.0	24-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	24-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	24-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	24-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
1.0	24-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	24-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	24-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	24-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	24-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	24-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	24-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	24-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	24-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	24-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
1.0	24-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
1.0	24-sep-1990	LM19	CCL3F		8.15e-03	UGG
1.0	24-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	24-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	24-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	24-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	24-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
1.0	24-sep-1990	LM19	CHCL3		4.30e-03	UGG
1.0	24-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	24-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	24-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	24-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	24-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	24-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	24-sep-1990	LM19	MIBK	LT	2.70e-02	UGG

Site: PLUG SS44B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
1.0	24-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	24-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	24-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	24-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	24-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	24-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
1.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG
1.0	08-oct-1990	SB01	HG	LT	2.43e-01	UGL
1.0	08-oct-1990	SD21	SE	LT	3.02e+00	UGL
1.0	08-oct-1990	SD22	AS	LT	2.54e+00	UGL
1.0	08-oct-1990	SS10	AG	LT	4.60e+00	UGL
1.0	08-oct-1990	SS10	BA		9.54e+02	UGL
1.0	08-oct-1990	SS10	CD		5.59e+00	UGL
1.0	08-oct-1990	SS10	CR	LT	6.02e+00	UGL
1.0	08-oct-1990	SS10	PB	LT	1.86e+01	UGL
1.0	08-oct-1990	UH14	245TP	LT	1.70e-01	UGL
1.0	08-oct-1990	UH14	24D	LT	8.02e-01	UGL
1.0	08-oct-1990	UM18	14DCLB	LT	1.70e+00	UGL
1.0	08-oct-1990	UM18	245TCP	LT	5.20e+00	UGL
1.0	08-oct-1990	UM18	246TCP	LT	4.20e+00	UGL
1.0	08-oct-1990	UM18	24DNT	LT	4.50e+00	UGL
1.0	08-oct-1990	UM18	2MP	LT	3.90e+00	UGL
1.0	08-oct-1990	UM18	3MP	ND	2.00e+00	UGL
1.0	08-oct-1990	UM18	4MP	LT	5.20e-01	UGL
1.0	08-oct-1990	UM18	ACLDAN	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	CL6BZ	LT	1.60e+00	UGL
1.0	08-oct-1990	UM18	CL6ET	LT	1.50e+00	UGL
1.0	08-oct-1990	UM18	ENDRN	ND	7.60e+00	UGL
1.0	08-oct-1990	UM18	GCLDAN	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	HCBD	LT	3.40e+00	UGL
1.0	08-oct-1990	UM18	HPCL	ND	2.00e+00	UGL
1.0	08-oct-1990	UM18	HPCLE	ND	5.00e+00	UGL

Site: PLUG SS44B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	08-oct-1990	UM18	LIN	ND	4.00e+00	UGL
1.0	08-oct-1990	UM18	MEXCLR	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	NB	LT	5.00e-01	UGL
1.0	08-oct-1990	UM18	PCP	LT	1.80e+01	UGL
1.0	08-oct-1990	UM18	PYR	ND	1.50e+00	UGL
1.0	08-oct-1990	UM18	TXPHEN	ND	3.60e+01	UGL
1.0	08-oct-1990	UM20	11DCE	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	12DCLE	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	C2H3CL	LT	5.20e+00	UGL
1.0	08-oct-1990	UM20	C6H6	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	CCL4	LT	1.16e+00	UGL
1.0	08-oct-1990	UM20	CHCL3	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	CLC6H5	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	MEK	LT	1.28e+01	UGL
1.0	08-oct-1990	UM20	TCLEE	LT	3.20e+00	UGL
1.0	08-oct-1990	UM20	TRCLE	LT	1.00e+00	UGL

Site: PLUG SS45A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		9.29e+03	UGG
0.0	24-sep-1990	JS11	BA		2.86e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	24-sep-1990	JS11	CA		2.08e+04	UGG
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.68e+04	UGG
0.0	24-sep-1990	JS11	K		9.81e+02	UGG
0.0	24-sep-1990	JS11	MG		4.89e+03	UGG
0.0	24-sep-1990	JS11	MN		8.38e+02	UGG
0.0	24-sep-1990	JS11	NA		3.62e+02	UGG
0.0	24-sep-1990	JS11	NI		2.80e+01	UGG
0.0	24-sep-1990	JS11	PB		5.65e+01	UGG
0.0	24-sep-1990	JS11	ZN		2.21e+02	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG

Site: PLUG SS45A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS45B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	24-sep-1990	JS11	AL		9.29e+03	UGG
1.0	24-sep-1990	JS11	BA		1.88e+02	UGG
1.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	24-sep-1990	JS11	CA		1.89e+04	UGG
1.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	24-sep-1990	JS11	FE		1.45e+04	UGG
1.0	24-sep-1990	JS11	K		9.27e+02	UGG
1.0	24-sep-1990	JS11	MG		3.87e+03	UGG
1.0	24-sep-1990	JS11	MN		7.96e+02	UGG
1.0	24-sep-1990	JS11	NA		4.44e+02	UGG
1.0	24-sep-1990	JS11	NI		2.49e+01	UGG
1.0	24-sep-1990	JS11	PB		1.59e+01	UGG
1.0	24-sep-1990	JS11	ZN		9.41e+01	UGG
1.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS46A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		7.17e+03	UGG
0.0	24-sep-1990	JS11	BA		1.99e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	24-sep-1990	JS11	CA		1.59e+04	UGG
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.46e+04	UGG
0.0	24-sep-1990	JS11	K		1.10e+03	UGG
0.0	24-sep-1990	JS11	MG		1.02e+04	UGG
0.0	24-sep-1990	JS11	MN		1.07e+03	UGG
0.0	24-sep-1990	JS11	NA		6.09e+02	UGG
0.0	24-sep-1990	JS11	NI		2.79e+01	UGG
0.0	24-sep-1990	JS11	PB		1.83e+01	UGG
0.0	24-sep-1990	JS11	ZN		8.46e+01	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS46B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	24-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	24-sep-1990	JD19	AS		8.44e+00	UGG
1.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG

Site: PLUG SS46B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	JS11	AL		8.76e+03	UGG
1.0	24-sep-1990	JS11	BA		4.34e+02	UGG
1.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	24-sep-1990	JS11	CA		8.88e+03	UGG
1.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	24-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	24-sep-1990	JS11	FE		1.64e+04	UGG
1.0	24-sep-1990	JS11	K		1.40e+03	UGG
1.0	24-sep-1990	JS11	MG		5.02e+03	UGG
1.0	24-sep-1990	JS11	MN		9.21e+02	UGG
1.0	24-sep-1990	JS11	NA		4.40e+02	UGG
1.0	24-sep-1990	JS11	NI		2.82e+01	UGG
1.0	24-sep-1990	JS11	PB		7.19e+01	UGG
1.0	24-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	24-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	24-sep-1990	JS11	V		4.27e+01	UGG
1.0	24-sep-1990	JS11	ZN		1.77e+02	UGG
1.0	24-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	24-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
1.0	24-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
1.0	24-sep-1990	LM18	12DPH	ND	1.40e-01	UGG
1.0	24-sep-1990	LM18	12EPCH		4.55e-01	UGG
1.0	24-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
1.0	24-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
1.0	24-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
1.0	24-sep-1990	LM18	246TCP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
1.0	24-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
1.0	24-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
1.0	24-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
1.0	24-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
1.0	24-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
1.0	24-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
1.0	24-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
1.0	24-sep-1990	LM18	2MP	LT	2.90e-02	UGG
1.0	24-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
1.0	24-sep-1990	LM18	2NP	LT	1.40e-01	UGG
1.0	24-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
1.0	24-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
1.0	24-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
1.0	24-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
1.0	24-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG
1.0	24-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG

Site: PLUG SS46B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM18	4MP	LT	2.40e-01	UGG
1.0	24-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
1.0	24-sep-1990	LM18	4NP	LT	1.40e+00	UGG
1.0	24-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG
1.0	24-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	ANTRC	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
1.0	24-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
1.0	24-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
1.0	24-sep-1990	LM18	BAANTR	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG
1.0	24-sep-1990	LM18	BBFANT	LT	2.10e-01	UGG
1.0	24-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
1.0	24-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
1.0	24-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG
1.0	24-sep-1990	LM18	BKFANT	LT	6.60e-02	UGG
1.0	24-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	C16A		3.41e-01	UGG
1.0	24-sep-1990	LM18	CHRY	LT	1.20e-01	UGG
1.0	24-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG
1.0	24-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
1.0	24-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
1.0	24-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
1.0	24-sep-1990	LM18	DEP	LT	2.40e-01	UGG
1.0	24-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	DMP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
1.0	24-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
1.0	24-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
1.0	24-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
1.0	24-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	FANT	LT	6.80e-02	UGG
1.0	24-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
1.0	24-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
1.0	24-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG

Site: PLUG SS46B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
1.0	24-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	LIN	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	NAP	LT	3.70e-02	UGG
1.0	24-sep-1990	LM18	NB	LT	4.50e-02	UGG
1.0	24-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
1.0	24-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
1.0	24-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	PCB016	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
1.0	24-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
1.0	24-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
1.0	24-sep-1990	LM18	PCP	LT	1.30e+00	UGG
1.0	24-sep-1990	LM18	PHANTR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
1.0	24-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	PYR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG
1.0	24-sep-1990	LM18	UNK548		2.28e-01	UGG
1.0	24-sep-1990	LM18	UNK549		5.69e-01	UGG
1.0	24-sep-1990	LM18	UNK608		3.41e-01	UGG
1.0	24-sep-1990	LM18	UNK649		7.96e-01	UGG
1.0	24-sep-1990	LM18	UNK653		6.83e-01	UGG
1.0	24-sep-1990	LM18	UNK672		1.14e+00	UGG
1.0	24-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	24-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	24-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	24-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
1.0	24-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	24-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	24-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	24-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	24-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	24-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	24-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	24-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	24-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	24-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
1.0	24-sep-1990	LM19	C6H6	LT	1.50e-03	UGG

Site: PLUG SS46B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM19	CCL3F		8.85e-03	UGG
1.0	24-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	24-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	24-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	24-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	24-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
1.0	24-sep-1990	LM19	CHCL3		5.19e-03	UGG
1.0	24-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	24-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	24-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	24-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	24-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	24-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	24-sep-1990	LM19	MIBK	LT	2.70e-02	UGG
1.0	24-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
1.0	24-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	24-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	24-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	24-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	24-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	24-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
1.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS47A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	24-sep-1990	JS11	AL		1.11e+04	UGG
0.0	24-sep-1990	JS11	BA		2.44e+02	UGG
0.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG

Site: PLUG SS47A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	24-sep-1990	JS11	CA		8.75e+03	UGG
0.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	24-sep-1990	JS11	FE		1.76e+04	UGG
0.0	24-sep-1990	JS11	K		1.40e+03	UGG
0.0	24-sep-1990	JS11	MG		5.00e+03	UGG
0.0	24-sep-1990	JS11	MN		9.90e+02	UGG
0.0	24-sep-1990	JS11	NA		3.45e+02	UGG
0.0	24-sep-1990	JS11	NI		2.90e+01	UGG
0.0	24-sep-1990	JS11	PB		9.44e+01	UGG
0.0	24-sep-1990	JS11	ZN		1.52e+02	UGG
0.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS47B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	24-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	24-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	24-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	24-sep-1990	JD19	AS		8.89e+00	UGG
1.0	24-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	24-sep-1990	JS11	AL		1.20e+04	UGG
1.0	24-sep-1990	JS11	BA		2.91e+02	UGG
1.0	24-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	24-sep-1990	JS11	CA		6.02e+03	UGG
1.0	24-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	24-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	24-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	24-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	24-sep-1990	JS11	FE		1.87e+04	UGG

Site: PLUG SS47B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	JS11	K		1.35e+03	UGG
1.0	24-sep-1990	JS11	MG		4.01e+03	UGG
1.0	24-sep-1990	JS11	MN		1.03e+03	UGG
1.0	24-sep-1990	JS11	NA		4.19e+02	UGG
1.0	24-sep-1990	JS11	NI		3.11e+01	UGG
1.0	24-sep-1990	JS11	PB		1.86e+01	UGG
1.0	24-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	24-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	24-sep-1990	JS11	V		5.02e+01	UGG
1.0	24-sep-1990	JS11	ZN		1.07e+02	UGG
1.0	24-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	24-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
1.0	24-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
1.0	24-sep-1990	LM18	12DPH	ND	1.40e-01	UGG
1.0	24-sep-1990	LM18	12EPCH		3.64e-01	UGG
1.0	24-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
1.0	24-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
1.0	24-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
1.0	24-sep-1990	LM18	246TCP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
1.0	24-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
1.0	24-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
1.0	24-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
1.0	24-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
1.0	24-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
1.0	24-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
1.0	24-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
1.0	24-sep-1990	LM18	2MP	LT	2.90e-02	UGG
1.0	24-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
1.0	24-sep-1990	LM18	2NP	LT	1.40e-01	UGG
1.0	24-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
1.0	24-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
1.0	24-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
1.0	24-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
1.0	24-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG
1.0	24-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	4MP	LT	2.40e-01	UGG
1.0	24-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
1.0	24-sep-1990	LM18	4NP	LT	1.40e+00	UGG
1.0	24-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG
1.0	24-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG

Site: PLUG SS47B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM18	ANTRC	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
1.0	24-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
1.0	24-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
1.0	24-sep-1990	LM18	BAANTR	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG
1.0	24-sep-1990	LM18	BBFANT	LT	2.10e-01	UGG
1.0	24-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
1.0	24-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
1.0	24-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG
1.0	24-sep-1990	LM18	BKFANT	LT	6.60e-02	UGG
1.0	24-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	CHRY	LT	1.20e-01	UGG
1.0	24-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG
1.0	24-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
1.0	24-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
1.0	24-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
1.0	24-sep-1990	LM18	DEP	LT	2.40e-01	UGG
1.0	24-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	DMP	LT	1.70e-01	UGG
1.0	24-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
1.0	24-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
1.0	24-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
1.0	24-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
1.0	24-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
1.0	24-sep-1990	LM18	FANT	LT	6.80e-02	UGG
1.0	24-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
1.0	24-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
1.0	24-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
1.0	24-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	LIN	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
1.0	24-sep-1990	LM18	NAP	LT	3.70e-02	UGG
1.0	24-sep-1990	LM18	NB	LT	4.50e-02	UGG
1.0	24-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
1.0	24-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
1.0	24-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG
1.0	24-sep-1990	LM18	PCB016	ND	1.40e+00	UGG

Site: PLUG SS47B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
1.0	24-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
1.0	24-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
1.0	24-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
1.0	24-sep-1990	LM18	PCP	LT	1.30e+00	UGG
1.0	24-sep-1990	LM18	PHANTR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
1.0	24-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
1.0	24-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
1.0	24-sep-1990	LM18	PYR	LT	3.30e-02	UGG
1.0	24-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG
1.0	24-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	24-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	24-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	24-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
1.0	24-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	24-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	24-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	24-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	24-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	24-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	24-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	24-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	24-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	24-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
1.0	24-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
1.0	24-sep-1990	LM19	CCL3F	LT	5.90e-03	UGG
1.0	24-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	24-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	24-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	24-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	24-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
1.0	24-sep-1990	LM19	CHCL3		3.30e-03	UGG
1.0	24-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	24-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	24-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	24-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	24-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	24-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	24-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	24-sep-1990	LM19	MIBK	LT	2.70e-02	UGG
1.0	24-sep-1990	LM19	MNBK	LT	3.20e-02	UGG

Site: PLUG SS47B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	24-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	24-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	24-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	24-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	24-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	24-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
1.0	24-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	24-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	24-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	24-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	24-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	24-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	24-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	24-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	24-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG
1.0	08-oct-1990	SB01	HG	LT	2.43e-01	UGL
1.0	08-oct-1990	SD21	SE	LT	3.02e+00	UGL
1.0	08-oct-1990	SD22	AS	LT	2.54e+00	UGL
1.0	08-oct-1990	SS10	AG	LT	4.60e+00	UGL
1.0	08-oct-1990	SS10	BA		8.81e+02	UGL
1.0	08-oct-1990	SS10	CD	LT	4.01e+00	UGL
1.0	08-oct-1990	SS10	CR	LT	6.02e+00	UGL
1.0	08-oct-1990	SS10	PB	LT	1.86e+01	UGL
1.0	08-oct-1990	UH14	245TP	LT	1.70e-01	UGL
1.0	08-oct-1990	UH14	24D	LT	8.02e-01	UGL
1.0	08-oct-1990	UM18	14DCLB	LT	1.70e+00	UGL
1.0	08-oct-1990	UM18	245TCP	LT	5.20e+00	UGL
1.0	08-oct-1990	UM18	246TCP	LT	4.20e+00	UGL
1.0	08-oct-1990	UM18	24DNT	LT	4.50e+00	UGL
1.0	08-oct-1990	UM18	2MP	LT	3.90e+00	UGL
1.0	08-oct-1990	UM18	3MP	ND	2.00e+00	UGL
1.0	08-oct-1990	UM18	4MP	LT	5.20e-01	UGL
1.0	08-oct-1990	UM18	ACLDAN	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	CL6BZ	LT	1.60e+00	UGL
1.0	08-oct-1990	UM18	CL6ET	LT	1.50e+00	UGL
1.0	08-oct-1990	UM18	ENDRN	ND	7.60e+00	UGL
1.0	08-oct-1990	UM18	GCLDAN	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	HCBD	LT	3.40e+00	UGL
1.0	08-oct-1990	UM18	HPCL	ND	2.00e+00	UGL
1.0	08-oct-1990	UM18	HPCLE	ND	5.00e+00	UGL
1.0	08-oct-1990	UM18	LIN	ND	4.00e+00	UGL

Site: PLUG SS47B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	08-oct-1990	UM18	MEXCLR	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	NB	LT	5.00e-01	UGL
1.0	08-oct-1990	UM18	PCP	LT	1.80e+01	UGL
1.0	08-oct-1990	UM18	PYR	ND	1.50e+00	UGL
1.0	08-oct-1990	UM18	TXPHEN	ND	3.60e+01	UGL
1.0	08-oct-1990	UM20	11DCE	LT	5.00e+00	UGL
1.0	08-oct-1990	UM20	12DCLE	LT	5.00e+00	UGL
1.0	08-oct-1990	UM20	C2H3CL	LT	2.60e+01	UGL
1.0	08-oct-1990	UM20	C6H6	LT	5.00e+00	UGL
1.0	08-oct-1990	UM20	CCL4	LT	5.80e+00	UGL
1.0	08-oct-1990	UM20	CHCL3	LT	5.00e+00	UGL
1.0	08-oct-1990	UM20	CLC6H5	LT	5.00e+00	UGL
1.0	08-oct-1990	UM20	MEK	LT	6.40e+01	UGL
1.0	08-oct-1990	UM20	TCLEE	LT	1.60e+01	UGL
1.0	08-oct-1990	UM20	TRCLE	LT	5.00e+00	UGL

Site: PLUG SS48A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	25-sep-1990	JS11	AL		1.11e+04	UGG
0.0	25-sep-1990	JS11	BA		2.33e+02	UGG
0.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	25-sep-1990	JS11	CA		2.55e+04	UGG
0.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	25-sep-1990	JS11	FE		1.83e+04	UGG
0.0	25-sep-1990	JS11	K		1.53e+03	UGG
0.0	25-sep-1990	JS11	MG		4.75e+03	UGG
0.0	25-sep-1990	JS11	MN		8.63e+02	UGG
0.0	25-sep-1990	JS11	NA		3.65e+02	UGG
0.0	25-sep-1990	JS11	NI		2.83e+01	UGG
0.0	25-sep-1990	JS11	PB		4.07e+01	UGG
0.0	25-sep-1990	JS11	ZN		1.37e+02	UGG
0.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG

Site: PLUG SS48A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS48B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	25-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	25-sep-1990	JD19	AS		6.65e+00	UGG
1.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	25-sep-1990	JS11	AL		1.04e+04	UGG
1.0	25-sep-1990	JS11	BA		1.77e+02	UGG
1.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	25-sep-1990	JS11	CA		1.47e+04	UGG
1.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	25-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	25-sep-1990	JS11	FE		1.48e+04	UGG
1.0	25-sep-1990	JS11	K		8.92e+02	UGG
1.0	25-sep-1990	JS11	MG		5.86e+03	UGG
1.0	25-sep-1990	JS11	MN		6.97e+02	UGG
1.0	25-sep-1990	JS11	NA		3.78e+02	UGG
1.0	25-sep-1990	JS11	NI	LT	1.26e+01	UGG
1.0	25-sep-1990	JS11	PB		1.20e+01	UGG
1.0	25-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	25-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	25-sep-1990	JS11	V		4.61e+01	UGG
1.0	25-sep-1990	JS11	ZN		7.29e+01	UGG
1.0	25-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	25-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
1.0	25-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	12DPH	ND	1.40e-01	UGG

Site: PLUG SS48B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	12EPCH		9.92e-01	UGG
1.0	25-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
1.0	25-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
1.0	25-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
1.0	25-sep-1990	LM18	246TCP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
1.0	25-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
1.0	25-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
1.0	25-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
1.0	25-sep-1990	LM18	2CHE1L		3.31e-01	UGG
1.0	25-sep-1990	LM18	2CHE1O		2.21e-01	UGG
1.0	25-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
1.0	25-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
1.0	25-sep-1990	LM18	2MP	LT	2.90e-02	UGG
1.0	25-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
1.0	25-sep-1990	LM18	2NP	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
1.0	25-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
1.0	25-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
1.0	25-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
1.0	25-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG
1.0	25-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4MP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
1.0	25-sep-1990	LM18	4NP	LT	1.40e+00	UGG
1.0	25-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	ANTRC	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
1.0	25-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
1.0	25-sep-1990	LM18	BAANTR	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG
1.0	25-sep-1990	LM18	BBFANT	LT	2.10e-01	UGG
1.0	25-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
1.0	25-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
1.0	25-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG

Site: PLUG SS48B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	BKFANT	LT	6.60e-02	UGG
1.0	25-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	CHRY		2.70e-01	UGG
1.0	25-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG
1.0	25-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
1.0	25-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
1.0	25-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
1.0	25-sep-1990	LM18	DEP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	DMP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
1.0	25-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
1.0	25-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	FANT		3.45e-01	UGG
1.0	25-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
1.0	25-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
1.0	25-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
1.0	25-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	LIN	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	NAP	LT	3.70e-02	UGG
1.0	25-sep-1990	LM18	NB	LT	4.50e-02	UGG
1.0	25-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
1.0	25-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	PCB016	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
1.0	25-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
1.0	25-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
1.0	25-sep-1990	LM18	PCP	LT	1.30e+00	UGG
1.0	25-sep-1990	LM18	PHANTR		1.37e-01	UGG
1.0	25-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PYR		2.74e-01	UGG
1.0	25-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG

Site: PLUG SS48B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	UNK648		3.31e-01	UGG
1.0	25-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	25-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	25-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
1.0	25-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	25-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	25-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	25-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	25-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
1.0	25-sep-1990	LM19	CCL3F	LT	5.90e-03	UGG
1.0	25-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	25-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	25-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	25-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
1.0	25-sep-1990	LM19	CHCL3		1.93e-03	UGG
1.0	25-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	25-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	25-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	25-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	25-sep-1990	LM19	MIBK	LT	2.70e-02	UGG
1.0	25-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
1.0	25-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	25-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	25-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	25-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
1.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG

Site: PLUG SS49B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	25-sep-1990	JS11	AL		9.47e+03	UGG
1.0	25-sep-1990	JS11	BA		2.94e+02	UGG
1.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	25-sep-1990	JS11	CA		1.20e+04	UGG
1.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	25-sep-1990	JS11	FE		1.80e+04	UGG
1.0	25-sep-1990	JS11	K		2.22e+03	UGG
1.0	25-sep-1990	JS11	MG		4.27e+03	UGG
1.0	25-sep-1990	JS11	MN		1.12e+03	UGG
1.0	25-sep-1990	JS11	NA		4.61e+02	UGG
1.0	25-sep-1990	JS11	NI		3.06e+01	UGG
1.0	25-sep-1990	JS11	PB		6.59e+01	UGG
1.0	25-sep-1990	JS11	ZN		1.64e+02	UGG
1.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS50A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	25-sep-1990	JS11	AL		9.69e+03	UGG
0.0	25-sep-1990	JS11	BA		2.79e+02	UGG
0.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	25-sep-1990	JS11	CA		9.75e+03	UGG

Site: PLUG SS50A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	25-sep-1990	JS11	FE		1.44e+04	UGG
0.0	25-sep-1990	JS11	K		1.46e+03	UGG
0.0	25-sep-1990	JS11	MG		4.96e+03	UGG
0.0	25-sep-1990	JS11	MN		1.05e+03	UGG
0.0	25-sep-1990	JS11	NA		4.84e+02	UGG
0.0	25-sep-1990	JS11	NI		2.70e+01	UGG
0.0	25-sep-1990	JS11	PB		2.57e+01	UGG
0.0	25-sep-1990	JS11	ZN		1.02e+02	UGG
0.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS50B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	25-sep-1990	JS11	AL		9.64e+03	UGG
1.0	25-sep-1990	JS11	BA		2.29e+02	UGG
1.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	25-sep-1990	JS11	CA		7.07e+03	UGG
1.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	25-sep-1990	JS11	FE		1.60e+04	UGG
1.0	25-sep-1990	JS11	K		1.16e+03	UGG
1.0	25-sep-1990	JS11	MG		4.26e+03	UGG
1.0	25-sep-1990	JS11	MN		9.77e+02	UGG
1.0	25-sep-1990	JS11	NA		4.96e+02	UGG
1.0	25-sep-1990	JS11	NI		2.57e+01	UGG
1.0	25-sep-1990	JS11	PB		1.79e+01	UGG

Site: PLUG SS51A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS51B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	25-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	25-sep-1990	JD19	AS		6.30e+00	UGG
1.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	25-sep-1990	JS11	AL		1.06e+04	UGG
1.0	25-sep-1990	JS11	BA		2.04e+02	UGG
1.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	25-sep-1990	JS11	CA		9.05e+03	UGG
1.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	25-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	25-sep-1990	JS11	FE		1.64e+04	UGG
1.0	25-sep-1990	JS11	K		1.00e+03	UGG
1.0	25-sep-1990	JS11	MG		4.15e+03	UGG
1.0	25-sep-1990	JS11	MN		9.27e+02	UGG
1.0	25-sep-1990	JS11	NA		3.70e+02	UGG
1.0	25-sep-1990	JS11	NI		2.57e+01	UGG
1.0	25-sep-1990	JS11	PB		2.38e+01	UGG
1.0	25-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	25-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	25-sep-1990	JS11	V		4.88e+01	UGG
1.0	25-sep-1990	JS11	ZN		8.75e+01	UGG
1.0	25-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	25-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
1.0	25-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	12DPH	ND	1.40e-01	UGG
1.0	25-sep-1990	LM18	12EPCH		1.02e+00	UGG
1.0	25-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
1.0	25-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
1.0	25-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
1.0	25-sep-1990	LM18	246TCP	LT	1.70e-01	UGG

Site: PLUG SS51B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
1.0	25-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
1.0	25-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
1.0	25-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
1.0	25-sep-1990	LM18	2CHE1L		3.41e-01	UGG
1.0	25-sep-1990	LM18	2CHE1O		3.41e-01	UGG
1.0	25-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
1.0	25-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
1.0	25-sep-1990	LM18	2MP	LT	2.90e-02	UGG
1.0	25-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
1.0	25-sep-1990	LM18	2NP	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
1.0	25-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
1.0	25-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
1.0	25-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
1.0	25-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG
1.0	25-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4MP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
1.0	25-sep-1990	LM18	4NP	LT	1.40e+00	UGG
1.0	25-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	ANTRC		1.04e-01	UGG
1.0	25-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
1.0	25-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
1.0	25-sep-1990	LM18	BAANTR		2.89e-01	UGG
1.0	25-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG
1.0	25-sep-1990	LM18	BBFANT		4.78e-01	UGG
1.0	25-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
1.0	25-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
1.0	25-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG
1.0	25-sep-1990	LM18	BKFANT		1.53e-01	UGG
1.0	25-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	CHRY		5.29e-01	UGG
1.0	25-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG

Site: PLUG SS51B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
1.0	25-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
1.0	25-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
1.0	25-sep-1990	LM18	DEP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	DMP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
1.0	25-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
1.0	25-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	FANT		9.09e-01	UGG
1.0	25-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
1.0	25-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
1.0	25-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
1.0	25-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	LIN	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	NAP	LT	3.70e-02	UGG
1.0	25-sep-1990	LM18	NB	LT	4.50e-02	UGG
1.0	25-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
1.0	25-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	PCB016	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
1.0	25-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
1.0	25-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
1.0	25-sep-1990	LM18	PCP	LT	1.30e+00	UGG
1.0	25-sep-1990	LM18	PHANTR		5.98e-01	UGG
1.0	25-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PYR		6.46e-01	UGG
1.0	25-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG
1.0	25-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	25-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	25-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG

Site: PLUG SS51B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	25-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	25-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	25-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	25-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
1.0	25-sep-1990	LM19	CCL3F	LT	5.90e-03	UGG
1.0	25-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	25-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	25-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	25-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
1.0	25-sep-1990	LM19	CHCL3	LT	8.70e-04	UGG
1.0	25-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	25-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	25-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	25-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	25-sep-1990	LM19	MIBK	LT	2.70e-02	UGG
1.0	25-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
1.0	25-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	25-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	25-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	25-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
1.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG
1.0	08-oct-1990	SB01	HG	LT	2.43e-01	UGL

Site: PLUG SS51B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	08-oct-1990	SD21	SE	LT	3.02e+00	UGL
1.0	08-oct-1990	SD22	AS	LT	2.54e+00	UGL
1.0	08-oct-1990	SS10	AG	LT	4.60e+00	UGL
1.0	08-oct-1990	SS10	BA		6.82e+02	UGL
1.0	08-oct-1990	SS10	CD	LT	4.01e+00	UGL
1.0	08-oct-1990	SS10	CR	LT	6.02e+00	UGL
1.0	08-oct-1990	SS10	PB		4.71e+01	UGL
1.0	08-oct-1990	UH14	245TP	LT	1.70e-01	UGL
1.0	08-oct-1990	UH14	24D	LT	8.02e-01	UGL
1.0	08-oct-1990	UM18	14DCLB	LT	1.70e+00	UGL
1.0	08-oct-1990	UM18	245TCP	LT	5.20e+00	UGL
1.0	08-oct-1990	UM18	246TCP	LT	4.20e+00	UGL
1.0	08-oct-1990	UM18	24DNT	LT	4.50e+00	UGL
1.0	08-oct-1990	UM18	2MP	LT	3.90e+00	UGL
1.0	08-oct-1990	UM18	3MP	ND	2.00e+00	UGL
1.0	08-oct-1990	UM18	4MP	LT	5.20e-01	UGL
1.0	08-oct-1990	UM18	ACLDAN	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	CL6BZ	LT	1.60e+00	UGL
1.0	08-oct-1990	UM18	CL6ET	LT	1.50e+00	UGL
1.0	08-oct-1990	UM18	ENDRN	ND	7.60e+00	UGL
1.0	08-oct-1990	UM18	GCLDAN	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	HCBD	LT	3.40e+00	UGL
1.0	08-oct-1990	UM18	HPCL	ND	2.00e+00	UGL
1.0	08-oct-1990	UM18	HPCLE	ND	5.00e+00	UGL
1.0	08-oct-1990	UM18	LIN	ND	4.00e+00	UGL
1.0	08-oct-1990	UM18	MEXCLR	ND	5.10e+00	UGL
1.0	08-oct-1990	UM18	NB	LT	5.00e-01	UGL
1.0	08-oct-1990	UM18	PCP	LT	1.80e+01	UGL
1.0	08-oct-1990	UM18	PYR	ND	1.50e+00	UGL
1.0	08-oct-1990	UM18	TXPHEN	ND	3.60e+01	UGL
1.0	08-oct-1990	UM20	11DCE	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	12DCLE	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	C2H3CL	LT	5.20e+00	UGL
1.0	08-oct-1990	UM20	C6H6	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	CCL4	LT	1.16e+00	UGL
1.0	08-oct-1990	UM20	CHCL3	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	CLC6H5	LT	1.00e+00	UGL
1.0	08-oct-1990	UM20	MEK	LT	1.28e+01	UGL
1.0	08-oct-1990	UM20	TCLEE	LT	3.20e+00	UGL
1.0	08-oct-1990	UM20	TRCLE	LT	1.00e+00	UGL

Site: PLUG SS52A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	25-sep-1990	JS11	AL		8.52e+03	UGG
0.0	25-sep-1990	JS11	BA		2.15e+02	UGG
0.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	25-sep-1990	JS11	CA		5.81e+03	UGG
0.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	25-sep-1990	JS11	FE		1.47e+04	UGG
0.0	25-sep-1990	JS11	K		1.23e+03	UGG
0.0	25-sep-1990	JS11	MG		3.00e+03	UGG
0.0	25-sep-1990	JS11	MN		1.09e+03	UGG
0.0	25-sep-1990	JS11	NA		3.53e+02	UGG
0.0	25-sep-1990	JS11	NI	LT	1.26e+01	UGG
0.0	25-sep-1990	JS11	PB		3.88e+01	UGG
0.0	25-sep-1990	JS11	ZN		1.18e+02	UGG
0.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS52B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	25-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	25-sep-1990	JD19	AS		6.41e+00	UGG
1.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG

Site: PLUG SS52B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	JS11	AL		1.10e+04	UGG
1.0	25-sep-1990	JS11	BA		2.14e+02	UGG
1.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	25-sep-1990	JS11	CA		1.06e+04	UGG
1.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	25-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	25-sep-1990	JS11	FE		1.59e+04	UGG
1.0	25-sep-1990	JS11	K		1.25e+03	UGG
1.0	25-sep-1990	JS11	MG		4.52e+03	UGG
1.0	25-sep-1990	JS11	MN		9.04e+02	UGG
1.0	25-sep-1990	JS11	NA		4.11e+02	UGG
1.0	25-sep-1990	JS11	NI		2.92e+01	UGG
1.0	25-sep-1990	JS11	PB		1.49e+01	UGG
1.0	25-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	25-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	25-sep-1990	JS11	V		5.11e+01	UGG
1.0	25-sep-1990	JS11	ZN		9.19e+01	UGG
1.0	25-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	25-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
1.0	25-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	12DPH	ND	1.40e-01	UGG
1.0	25-sep-1990	LM18	12EPCH		8.83e-01	UGG
1.0	25-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
1.0	25-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
1.0	25-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
1.0	25-sep-1990	LM18	246TCP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
1.0	25-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
1.0	25-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
1.0	25-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
1.0	25-sep-1990	LM18	2CHE1L		2.21e-01	UGG
1.0	25-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
1.0	25-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
1.0	25-sep-1990	LM18	2MP	LT	2.90e-02	UGG
1.0	25-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
1.0	25-sep-1990	LM18	2NP	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
1.0	25-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
1.0	25-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
1.0	25-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
1.0	25-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG

Site: PLUG SS52B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4MP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
1.0	25-sep-1990	LM18	4NP	LT	1.40e+00	UGG
1.0	25-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	ANTRC	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
1.0	25-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
1.0	25-sep-1990	LM18	BAANTR	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG
1.0	25-sep-1990	LM18	BBFANT	LT	2.10e-01	UGG
1.0	25-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
1.0	25-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
1.0	25-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG
1.0	25-sep-1990	LM18	BKFANT	LT	6.60e-02	UGG
1.0	25-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	CHRY		2.16e-01	UGG
1.0	25-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG
1.0	25-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
1.0	25-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
1.0	25-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
1.0	25-sep-1990	LM18	DEP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	DMP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
1.0	25-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
1.0	25-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	FANT		2.94e-01	UGG
1.0	25-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
1.0	25-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
1.0	25-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG

Site: PLUG SS52B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
1.0	25-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	LIN	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	NAP	LT	3.70e-02	UGG
1.0	25-sep-1990	LM18	NB	LT	4.50e-02	UGG
1.0	25-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
1.0	25-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	PCB016	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
1.0	25-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
1.0	25-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
1.0	25-sep-1990	LM18	PCP	LT	1.30e+00	UGG
1.0	25-sep-1990	LM18	PHANTR		1.25e-01	UGG
1.0	25-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PYR		2.22e-01	UGG
1.0	25-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG
1.0	25-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	25-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	25-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
1.0	25-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	25-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	25-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	25-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	25-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
1.0	25-sep-1990	LM19	CCL3F	LT	5.90e-03	UGG
1.0	25-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	25-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	25-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	25-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG

Site: PLUG SS52B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM19	CHCL3	LT	8.70e-04	UGG
1.0	25-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	25-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	25-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	25-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	25-sep-1990	LM19	MIBK	LT	2.70e-02	UGG
1.0	25-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
1.0	25-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	25-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	25-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	25-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
1.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS53A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	25-sep-1990	JS11	AL		1.35e+04	UGG
0.0	25-sep-1990	JS11	BA		3.14e+02	UGG
0.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	25-sep-1990	JS11	CA		1.05e+04	UGG
0.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	25-sep-1990	JS11	FE		1.95e+04	UGG
0.0	25-sep-1990	JS11	K		1.69e+03	UGG

Site: PLUG SS53A (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	JS11	MG		5.68e+03	UGG
0.0	25-sep-1990	JS11	MN		1.14e+03	UGG
0.0	25-sep-1990	JS11	NA		4.59e+02	UGG
0.0	25-sep-1990	JS11	NI		3.08e+01	UGG
0.0	25-sep-1990	JS11	PB		2.16e+01	UGG
0.0	25-sep-1990	JS11	ZN		1.10e+02	UGG
0.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS53B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	25-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	25-sep-1990	JD19	AS		9.61e+00	UGG
1.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	25-sep-1990	JS11	AL		1.14e+04	UGG
1.0	25-sep-1990	JS11	BA		2.83e+02	UGG
1.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	25-sep-1990	JS11	CA		1.49e+04	UGG
1.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	25-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	25-sep-1990	JS11	FE		1.86e+04	UGG
1.0	25-sep-1990	JS11	K		1.42e+03	UGG
1.0	25-sep-1990	JS11	MG		5.98e+03	UGG
1.0	25-sep-1990	JS11	MN		1.08e+03	UGG
1.0	25-sep-1990	JS11	NA		4.62e+02	UGG
1.0	25-sep-1990	JS11	NI		3.04e+01	UGG
1.0	25-sep-1990	JS11	PB		2.36e+01	UGG

Site: PLUG SS53B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	25-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	25-sep-1990	JS11	V		4.80e+01	UGG
1.0	25-sep-1990	JS11	ZN		1.09e+02	UGG
1.0	25-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	25-sep-1990	LM18	124TCB	LT	4.00e-02	UGG
1.0	25-sep-1990	LM18	12DCLB	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	12DPH	ND	1.40e-01	UGG
1.0	25-sep-1990	LM18	13DCLB	LT	1.30e-01	UGG
1.0	25-sep-1990	LM18	14DCLB	LT	9.80e-02	UGG
1.0	25-sep-1990	LM18	245TCP	LT	1.00e-01	UGG
1.0	25-sep-1990	LM18	246TCP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	24DCLP	LT	1.80e-01	UGG
1.0	25-sep-1990	LM18	24DMPN	LT	6.90e-01	UGG
1.0	25-sep-1990	LM18	24DNP	LT	1.20e+00	UGG
1.0	25-sep-1990	LM18	24DNT	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	26DNT	LT	8.50e-02	UGG
1.0	25-sep-1990	LM18	2CLP	LT	6.00e-02	UGG
1.0	25-sep-1990	LM18	2CNAP	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	2MNAP	LT	4.90e-02	UGG
1.0	25-sep-1990	LM18	2MP	LT	2.90e-02	UGG
1.0	25-sep-1990	LM18	2NANIL	LT	6.20e-02	UGG
1.0	25-sep-1990	LM18	2NP	LT	1.40e-01	UGG
1.0	25-sep-1990	LM18	33DCBD	LT	6.30e+00	UGG
1.0	25-sep-1990	LM18	3NANIL	LT	4.50e-01	UGG
1.0	25-sep-1990	LM18	46DN2C	LT	5.50e-01	UGG
1.0	25-sep-1990	LM18	4BRPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4CANIL	LT	8.10e-01	UGG
1.0	25-sep-1990	LM18	4CL3C	LT	9.50e-02	UGG
1.0	25-sep-1990	LM18	4CLPPE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	4MP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	4NANIL	LT	4.10e-01	UGG
1.0	25-sep-1990	LM18	4NP	LT	1.40e+00	UGG
1.0	25-sep-1990	LM18	ABHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	ACLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	AENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	ALDRN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	ANAPNE	LT	3.60e-02	UGG
1.0	25-sep-1990	LM18	ANAPYL	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	ANTRC		7.83e-02	UGG
1.0	25-sep-1990	LM18	B2CEXM	LT	5.90e-02	UGG
1.0	25-sep-1990	LM18	B2CIPE	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	B2CLEE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	B2EHP	LT	6.20e-01	UGG
1.0	25-sep-1990	LM18	BAANTR		2.14e-01	UGG
1.0	25-sep-1990	LM18	BAPYR	LT	2.50e-01	UGG

Site: PLUG SS53B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	BBFANT		3.90e-01	UGG
1.0	25-sep-1990	LM18	BBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	BBZP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	BENSLF	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	BENZID	ND	8.50e-01	UGG
1.0	25-sep-1990	LM18	BENZOA	ND	6.10e+00	UGG
1.0	25-sep-1990	LM18	BGHIPY	LT	2.50e-01	UGG
1.0	25-sep-1990	LM18	BKFANT		1.30e-01	UGG
1.0	25-sep-1990	LM18	BZALC	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	CHRY		4.45e-01	UGG
1.0	25-sep-1990	LM18	CL6BZ	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	CL6CP	LT	6.20e+00	UGG
1.0	25-sep-1990	LM18	CL6ET	LT	1.50e-01	UGG
1.0	25-sep-1990	LM18	DBAHA	LT	2.10e-01	UGG
1.0	25-sep-1990	LM18	DBHC	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	DBZFUR	LT	3.50e-02	UGG
1.0	25-sep-1990	LM18	DEP	LT	2.40e-01	UGG
1.0	25-sep-1990	LM18	DLDRN	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	DMP	LT	1.70e-01	UGG
1.0	25-sep-1990	LM18	DNBP	LT	6.10e-02	UGG
1.0	25-sep-1990	LM18	DNOP	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	ENDRN	ND	4.50e-01	UGG
1.0	25-sep-1990	LM18	ENDRNA	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ENDRNK	ND	5.30e-01	UGG
1.0	25-sep-1990	LM18	ESFSO4	ND	6.20e-01	UGG
1.0	25-sep-1990	LM18	FANT		7.63e-01	UGG
1.0	25-sep-1990	LM18	FLRENE	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	GCLDAN	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	HCBD	LT	2.30e-01	UGG
1.0	25-sep-1990	LM18	HPCL	ND	1.30e-01	UGG
1.0	25-sep-1990	LM18	HPCLE	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	ICDPYR	LT	2.90e-01	UGG
1.0	25-sep-1990	LM18	ISOPHR	LT	3.30e-02	UGG
1.0	25-sep-1990	LM18	LIN	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	MEXCLR	ND	3.30e-01	UGG
1.0	25-sep-1990	LM18	NAP	LT	3.70e-02	UGG
1.0	25-sep-1990	LM18	NB	LT	4.50e-02	UGG
1.0	25-sep-1990	LM18	NNDMEA	ND	1.40e-01	UGG
1.0	25-sep-1990	LM18	NNDNPA	LT	2.00e-01	UGG
1.0	25-sep-1990	LM18	NNDPA	LT	1.90e-01	UGG
1.0	25-sep-1990	LM18	PCB016	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB221	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB232	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB242	ND	1.40e+00	UGG
1.0	25-sep-1990	LM18	PCB248	ND	2.00e+00	UGG
1.0	25-sep-1990	LM18	PCB254	ND	2.30e+00	UGG
1.0	25-sep-1990	LM18	PCB260	ND	2.60e+00	UGG
1.0	25-sep-1990	LM18	PCP	LT	1.30e+00	UGG

Site: PLUG SS53B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM18	PHANTR		4.69e-01	UGG
1.0	25-sep-1990	LM18	PHENOL	LT	1.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDD	ND	2.70e-01	UGG
1.0	25-sep-1990	LM18	PPDDE	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PPDDT	ND	3.10e-01	UGG
1.0	25-sep-1990	LM18	PYR		5.24e-01	UGG
1.0	25-sep-1990	LM18	TXPHEN	ND	2.60e+00	UGG
1.0	25-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	25-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	25-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
1.0	25-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	25-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	25-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	25-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	25-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
1.0	25-sep-1990	LM19	CCL3F	LT	5.90e-03	UGG
1.0	25-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	25-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	25-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	25-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
1.0	25-sep-1990	LM19	CHCL3	LT	8.70e-04	UGG
1.0	25-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	25-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	25-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	25-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	25-sep-1990	LM19	MIBK	LT	2.70e-02	UGG
1.0	25-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
1.0	25-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	25-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	25-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	25-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG

Site: PLUG SS53B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS54A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
0.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
0.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
0.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
0.0	25-sep-1990	JS11	AL		1.20e+04	UGG
0.0	25-sep-1990	JS11	BA		2.33e+02	UGG
0.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
0.0	25-sep-1990	JS11	CA		2.32e+04	UGG
0.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
0.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
0.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
0.0	25-sep-1990	JS11	FE		1.79e+04	UGG
0.0	25-sep-1990	JS11	K		1.39e+03	UGG
0.0	25-sep-1990	JS11	MG		7.70e+03	UGG
0.0	25-sep-1990	JS11	MN		9.55e+02	UGG
0.0	25-sep-1990	JS11	NA		4.91e+02	UGG
0.0	25-sep-1990	JS11	NI		2.79e+01	UGG
0.0	25-sep-1990	JS11	PB		5.24e+01	UGG
0.0	25-sep-1990	JS11	ZN		1.12e+02	UGG
0.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
0.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
0.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
0.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
0.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
0.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
0.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
0.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
0.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS54B

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	99	NC	LT	1.04e+01	UGG
1.0	25-sep-1990	99	TETR	LT	9.44e-03	UGG
1.0	25-sep-1990	JB01	HG	LT	5.00e-02	UGG
1.0	25-sep-1990	JD15	SE	LT	2.50e-01	UGG
1.0	25-sep-1990	JD19	AS		7.37e+00	UGG
1.0	25-sep-1990	JS11	AG	LT	2.50e+00	UGG
1.0	25-sep-1990	JS11	AL		1.08e+04	UGG
1.0	25-sep-1990	JS11	BA		2.11e+02	UGG
1.0	25-sep-1990	JS11	BE	LT	1.86e+00	UGG
1.0	25-sep-1990	JS11	CA		1.27e+04	UGG
1.0	25-sep-1990	JS11	CD	LT	3.05e+00	UGG
1.0	25-sep-1990	JS11	CO	LT	1.50e+01	UGG
1.0	25-sep-1990	JS11	CR	LT	1.27e+01	UGG
1.0	25-sep-1990	JS11	CU	LT	5.86e+01	UGG
1.0	25-sep-1990	JS11	FE		1.77e+04	UGG
1.0	25-sep-1990	JS11	K		1.13e+03	UGG
1.0	25-sep-1990	JS11	MG		5.50e+03	UGG
1.0	25-sep-1990	JS11	MN		9.55e+02	UGG
1.0	25-sep-1990	JS11	NA		6.27e+02	UGG
1.0	25-sep-1990	JS11	NI		4.85e+01	UGG
1.0	25-sep-1990	JS11	PB		2.33e+01	UGG
1.0	25-sep-1990	JS11	SB	LT	3.80e+00	UGG
1.0	25-sep-1990	JS11	TL	LT	3.13e+01	UGG
1.0	25-sep-1990	JS11	V		4.94e+01	UGG
1.0	25-sep-1990	JS11	ZN		8.60e+01	UGG
1.0	25-sep-1990	KY01	CYN	LT	9.20e-01	UGG
1.0	25-sep-1990	LM19	111TCE	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	112TCE	LT	5.40e-03	UGG
1.0	25-sep-1990	LM19	11DCE	LT	3.90e-03	UGG
1.0	25-sep-1990	LM19	11DCLE	LT	2.30e-03	UGG
1.0	25-sep-1990	LM19	12DCE	LT	3.00e-03	UGG
1.0	25-sep-1990	LM19	12DCLE	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	12DCLP	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	2CLEVE	ND	1.00e-02	UGG
1.0	25-sep-1990	LM19	ACET	LT	1.70e-02	UGG
1.0	25-sep-1990	LM19	ACROLN	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	ACRYLO	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	BRDCLM	LT	2.90e-03	UGG
1.0	25-sep-1990	LM19	C13DCP	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2AVE	LT	3.20e-03	UGG
1.0	25-sep-1990	LM19	C2H3CL	LT	6.20e-03	UGG
1.0	25-sep-1990	LM19	C2H5CL	LT	1.20e-02	UGG

Site: PLUG SS54B (continued)

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
1.0	25-sep-1990	LM19	C6H6	LT	1.50e-03	UGG
1.0	25-sep-1990	LM19	CCL3F	LT	5.90e-03	UGG
1.0	25-sep-1990	LM19	CCL4	LT	7.00e-03	UGG
1.0	25-sep-1990	LM19	CH2CL2	LT	1.20e-02	UGG
1.0	25-sep-1990	LM19	CH3BR	LT	5.70e-03	UGG
1.0	25-sep-1990	LM19	CH3CL	LT	8.80e-03	UGG
1.0	25-sep-1990	LM19	CHBR3	LT	6.90e-03	UGG
1.0	25-sep-1990	LM19	CHCL3	LT	8.70e-04	UGG
1.0	25-sep-1990	LM19	CL2BZ	ND	1.00e-01	UGG
1.0	25-sep-1990	LM19	CLC6H5	LT	8.60e-04	UGG
1.0	25-sep-1990	LM19	CS2	LT	4.40e-03	UGG
1.0	25-sep-1990	LM19	DBRCLM	LT	3.10e-03	UGG
1.0	25-sep-1990	LM19	ETC6H5	LT	1.70e-03	UGG
1.0	25-sep-1990	LM19	MEC6H5	LT	7.80e-04	UGG
1.0	25-sep-1990	LM19	MEK	LT	7.00e-02	UGG
1.0	25-sep-1990	LM19	MIBK	LT	2.70e-02	UGG
1.0	25-sep-1990	LM19	MNBK	LT	3.20e-02	UGG
1.0	25-sep-1990	LM19	STYR	LT	2.60e-03	UGG
1.0	25-sep-1990	LM19	T13DCP	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	TCLEA	LT	2.40e-03	UGG
1.0	25-sep-1990	LM19	TCLEE	LT	8.10e-04	UGG
1.0	25-sep-1990	LM19	TRCLE	LT	2.80e-03	UGG
1.0	25-sep-1990	LM19	XYLEN	LT	1.50e-03	UGG
1.0	25-sep-1990	LW12	135TNB	LT	4.88e-01	UGG
1.0	25-sep-1990	LW12	13DNB	LT	4.96e-01	UGG
1.0	25-sep-1990	LW12	246TNT	LT	4.56e-01	UGG
1.0	25-sep-1990	LW12	24DNT	LT	4.24e-01	UGG
1.0	25-sep-1990	LW12	26DNT	LT	5.24e-01	UGG
1.0	25-sep-1990	LW12	HMX	LT	6.66e-01	UGG
1.0	25-sep-1990	LW12	PETN	LT	4.00e+00	UGG
1.0	25-sep-1990	LW12	RDX	LT	5.87e-01	UGG
1.0	25-sep-1990	LW12	TETRYL	LT	7.31e-01	UGG

Site: PLUG SS55A

SAMPLE DEPTH (ft)	SAMPLE DATE	TEST METHOD	COMPOUND	BOOL	CONCENTRATION	UNITS
0.0	25-sep-1990	LH16	PCB016	LT	3.33e+03	UGG
0.0	25-sep-1990	LH16	PCB221	ND	4.10e+03	UGG
0.0	25-sep-1990	LH16	PCB232	ND	4.10e+03	UGG
0.0	25-sep-1990	LH16	PCB242	ND	4.10e+03	UGG
0.0	25-sep-1990	LH16	PCB248	ND	4.10e+03	UGG
0.0	25-sep-1990	LH16	PCB254	ND	4.10e+03	UGG
0.0	25-sep-1990	LH16	PCB260		1.79e+04	UGG

APPENDIX B - ASBESTOS DATA FROM ECOSAFE REPORT

EXHIBIT B-1

DATA FROM ECOSAFE ASBESTOS CONTAINING MATERIAL SURVEY SAMPLE LOCATIONS AND ANALYTICAL RESULTS[a]

SAMPLE DES-IGNATION	DESCRIPTION/LOCATION	ANALYTICAL RESULTS
4085-A	Center of Floor/219B	15-30% Asbestos (Chrysotile)
4085-B	Center of Floor/219C	15-30% Asbestos (Chrysotile)
4085-C	Center of Floor/219E	5-15% Asbestos (Chrysotile)
4085-D	Center of Floor/219F	5-15% Asbestos (Chrysotile)
4085-E	Center of Floor/219H	5-15% Asbestos (Chrysotile)
4085-F	Center of Floor/219J	15-30% Asbestos (Chrysotile)
4085-G	Center of Floor/219A	15-30% Asbestos (Chrysotile)
4085-H	Center of Floor/219A	15-30% Asbestos (Chrysotile)
4085-I	Center of Ceiling/219A	<1% Asbestos (Chrysotile)
4085-J	Center of Floor/219D	5-15% Asbestos (Chrysotile)
4085-K	Center of Floor/219D	5-15% Asbestos (Chrysotile)
4085-L	Center of Floor/219D	5-15% Asbestos (Chrysotile)
4085-M	East Room-Ceiling/219D	ND
4085-N	Center of Floor/219G	5-15% Asbestos (Chrysotile)
4085-O	Center of Floor/219G	15-30% Asbestos (Chrysotile)
4085-P	Center of Floor/219G	5-15% Asbestos (Chrysotile)
4085-Q	West Room-Ceiling/219D	ND
4085-R	Center of Floor/219A	5-15% Asbestos (Chrysotile)
4085-S	Center of Floor/219D	5-15% Asbestos (Chrysotile)
4085-T	No Sample	--
4085-U	Pipe fitting SE side/219A	5-15% Asbestos (Amosite) 30-50% Asbestos (Chrysotile)
4085-V	Pipe lagging NE side/219A	15-30% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)
4085-W	Pipe lagging NW corner/219A	15-30% Asbestos (Amosite) 30-50% Asbestos (Chrysotile)
4085-X	Pipe lagging SW corner/219A	15-30% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)

[a] Asbestos survey conducted by Directorate of Engineering and Housing, US Army Engineer Center and Ft. Leonard Wood.

EXHIBIT B-1 (Continued)

DATA FROM ECOSAFE ASBESTOS CONTAINING MATERIAL SURVEY
SAMPLE LOCATIONS AND ANALYTICAL RESULTS[a]

SAMPLE DES-IGNATION	DESCRIPTION/LOCATION	ANALYTICAL RESULTS
4085-Y	Pipe lagging NW side/219D	15-30% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)
4085-Z	Pipe fitting NE corner/219D	5-15% Asbestos (Amosite) 30-50% Asbestos (Chrysotile)
4085-AA	Pipe lagging E side/219D	15-30% Asbestos (Amosite) 30-50% Asbestos (Chrysotile)
4085-BB	Pipe lagging SE corner/219D	15-30% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)
4085-CC	Pipe lagging E side of N end/219G	15-30% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)
4085-DD	Pipe lagging N side of W end/219G	15-30% Asbestos (Amosite) 30-50% Asbestos (Chrysotile)
4085-EE	Pipe lagging W side of N end/219G	30-50% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)
4085-FF	Pipe fitting NE corner/219G	>75% Asbestos (Chrysotile)
4085-GG	Pipe lagging NW corner/219A	15-30% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)
4085-HH	Pipe lagging E side/219D	30-50% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)
4085-II	Pipe lagging E side of N end/219G	15-30% Asbestos (Amosite) 15-30% Asbestos (Chrysotile)

[a] Asbestos survey conducted by Directorate of Engineering and Housing, US Army Engineer Center and Ft. Leonard Wood.